ORDER NO. MD9106057A2

Service Manual

Stereo Music System

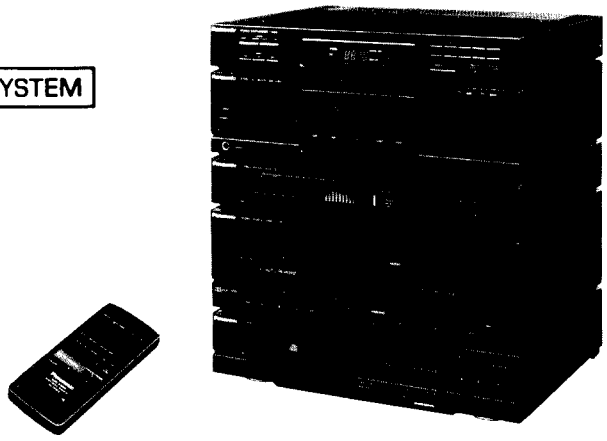
SA-HD52

QUARTZ Synthesizer MW/LW/FM
Stereo Radio with Double Cassette
Tape Deck and Compact Disc Player

COMPACT disc DIGITAL AUDIO

DIGITAL

DOLBY SYSTEM



Color

(K)... Black Type

Area

Country Code	Area	Color
(EG)	F.R. Germany and Italy.	(K)

System name	Unit
SC-HD52 (EG)	SA-HD52 (EG) Music Center
	SL-J7 (EG) Player
	SB-ZM52 (E) Speaker System (Made in PAES)

* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.

TAPE DECK: RS-T330R MECHANISM SERIES (AR300)
TRAVERSE DECK: RX-DT55 MECHANISM SERIES (SODD110Z)

SPECIFICATIONS

■ AMPLIFIER SECTION

40 Hz~16 kHz continuous power output	
both channels driven	2×45 W (THD 1%, 8Ω)
1 kHz continuous power output	
both channels driven	2×50 W (THD 1%, 8Ω)
MPO	2×90 W (THD 10%, 8Ω)
PMPO	360 W (THD 10%, 8Ω)
Total harmonic distortion half power at 1 kHz	0.015% (8Ω)
Power bandwidth both channels driven, −3 dB	20 Hz~40 kHz (8Ω)
Frequency response	
PHONO	30 Hz~15 kHz
	RIAA standard curve ±1 dB
AUX	20 Hz~30 kHz (−3 dB)
Input sensitivity and impedance	
PHONO	2.5 mV/47 kΩ
AUX	150 mV/12 kΩ
Graphic equalizer	±10 dB
(63 Hz, 160 Hz, 400 Hz, 1 kHz, 2.5 kHz, 6.3 kHz, 12.5 kHz)	
Damping factor	20 (8Ω)
Load impedance	8~16Ω

■ FM TUNER SECTION

Frequency range	87.50~108.00 MHz
Sensitivity	25.2 dBf, (5 μV, IHF'58)
S/N 26 dB	3.8 μV (40 kHz mod., 75Ω)
Total harmonic distortion	
MONO	0.3%
STEREO	0.5%
S/N	
MONO	60 dB (65 dB, IHF)
Image rejection at 98 MHz	35 dB
Stereo separation	
1 kHz	35 dB
Antenna terminals	75Ω (unbalanced)

■ AM TUNER SECTION

Frequency range	
MW	522~1611 kHz
LW	144~288 kHz
Sensitivity (for 500 mW)	
MW (at 999 kHz)	200 μV/m
LW (at 254 kHz)	500 μV/m

■ CASSETTE DECK SECTION

Track system	4-track, 2-channel
Heads	
playback	Solid Permalloy Head (Rotary head)
record/playback	Solid Permalloy Head (Rotary head)
erasure	Double gap ferrite head
Motor	DC servo motor
Recording system	AC bias, 85 kHz
Erasing system	AC erase, 85 kHz
Tape speed	4.8 cm/sec (1⅞ ips)
Frequency response	
NORMAL	40 Hz~14 kHz, $^{+3}_{-8}$ dB
CrO_2	40 Hz~15 kHz, $^{+3}_{-8}$ dB

Panasonic

S/N (CrO_2 type tape)	
Dolby NR off	53 dB (A-WTD)
Dolby NR on	62 dB (CCIR)
Wow and flutter	0.1% (WRMS)
Fast forward and rewind time	Approx, 110 secondes with C-60 cassette tape

■ CD SECTION

S/N ratio	95 dB or more
T.H.D.	0.015% or less
Wow. & flutter	below measurement threshold
Sampling frequency	44.1 kHz
D-A conversion	multi stage noise shaping
Beam source	semi conductor laser (wave length 780 nm)
No. of channels	2-channels, stereo
No. of memory	20-tracks random programming

■ GENERAL

Power consumption	265 W
Power supply	AC 50 Hz, 230 V
Dimensions (W×H×D)	360×381.5×270.8 mm
Weight	11.6 kg

Notes:

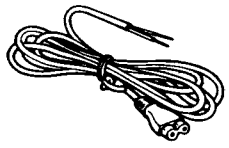
1. Specifications are subject to change without notice. Weight and dimensions are approximate.
2. Total harmoic distortion is measured by the digital spectrum analyzer.

■ CONTENTS

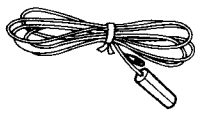
	Page
ACCESSORIES	2
PRECAUTION OF LASER DIODE	3
CONNECTIONS	4
PROTECTION CIRCUITRY	4
BEFORE REPAIR AND ADJUSTMENT	4
FRONT PANEL CONTROLS AND FUNCTIONS	5~9
HANDLING PRECAUTIONS FOR TRAVERSE DECK	10
DISASSEMBLY INSTRUCTIONS	11~23
MEASUREMENTS AND ADJUSTMENTS	24~29
TERMINAL FUNCTION OF IC'S	30~38
DIGITAL SERVO SYSTEM	39, 40
TROUBLESHOOTING DUIDE	41, 42
INTERNAL CONNECTION OF FL	43~45
BLOCK DIAGRAM	46~51
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES	52
SCHEMATIC DIAGRAM	53~72
PRINTED CIRCUIT BOARDS	73~82
WIRING CONNECTION DIAGRAM	83, 84
REPLACEMENT PARTS LIST	85~90
EXPLODED VIEWS	91~94
REPLACEMENT PARTS LIST	95, 96
EXPLODED VIEWS	97~99
REPLACEMENT PARTS LIST	100
PACKING	101
RESISTORS & CAPACITORS	101~106

■ ACCESSORIES

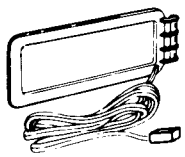
- AC power supply cord ..... 1 pc. (SFDAC05E03)



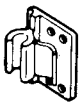
- FM indoor antenna ..... 1 pc. (SSA270M)



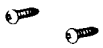
- AM loop antenna ..... 1 pc. (SPB1163T)



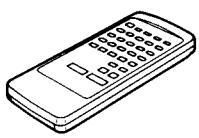
- AM antenna holder ..... 1 pc. (SMA233-1M)



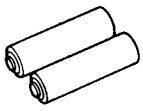
- Screws ..... 2 pcs. (XTN3+10AFZ)



- Remote-control transmitter ..... 1 pc. (RAK-SG302EM)



- Batteries ..... 2 pcs.



■ PRECAUTION OF LASER DIODE

CAUTION: This product utilizes a laser diode with the unit turned "on", invisible laser radiation is emitted from the pick up lens.
Wave length: 780nm
Maximum output radiation power from pick up: 100μW/VDE

Laser radiation from the pick up lens is safety level, but be sure the followings:

1. Do not disassemble the optical pick up unit, since radiation from exposed laser diode is dangerous.
2. Do not adjust the variable resistor on the pickup unit. It was already adjusted.
3. Do not look at the focus lens using optical instruments.
4. Recommend not to look at pick up lens for a long time.

ACHTUNG: Dieses produkt enthält eine laserdiode. Im eingeschalteten zustand wird unsichtbare laserstrahlung von der lasereinheit abgestrahlt.

Wellenlänge: 780nm
Maximale strahlungsleistung der lasereinheit: 100μW/VDE

Die strahlung an der lasereinheit ist ungefährlich, wenn folgende punkte beachtet werden:

1. Die lasereinheit nicht zerlegen, da die strahlung an der freigelegten laserdiode gefährlich ist.
2. Den werksseitig justierten einstellregler der lasereinreit nicht verstellen.
3. Nicht mit optischen instrumenten in die fokussierlinse blicken.
4. Nicht über längere zeit in die fokussierlinse blicken.

ADVARSEL: I dette a apparat anvendes laser.

RQLS0021

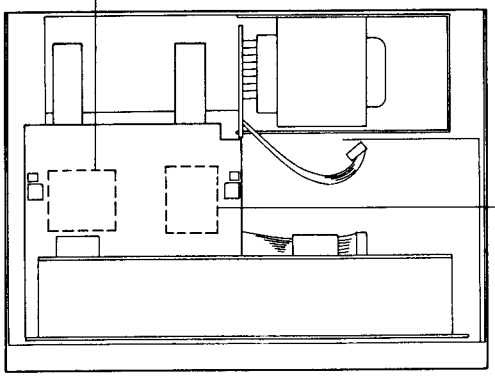
ADVARSEL: USYNLIG LASERSTRÅLING VED ÅBNING, NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VORSICHT-Unsichtbare Laserstrahlung, wenn Abdeckung geöffnet. Nicht dem Strahl aussetzen. RQLS0021
DANGER-Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

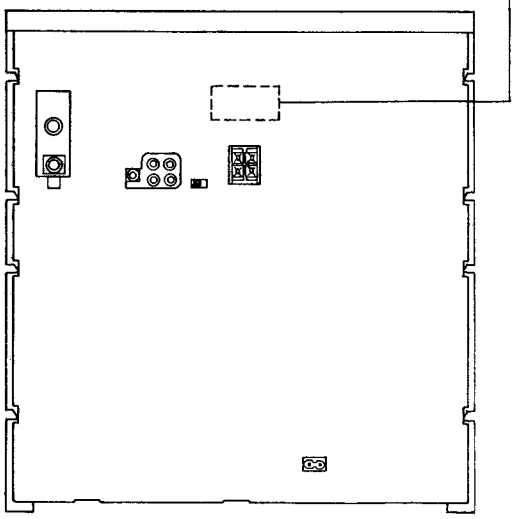
RQLS0051

VARO! Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.
VARNING! Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.
RQLS0051

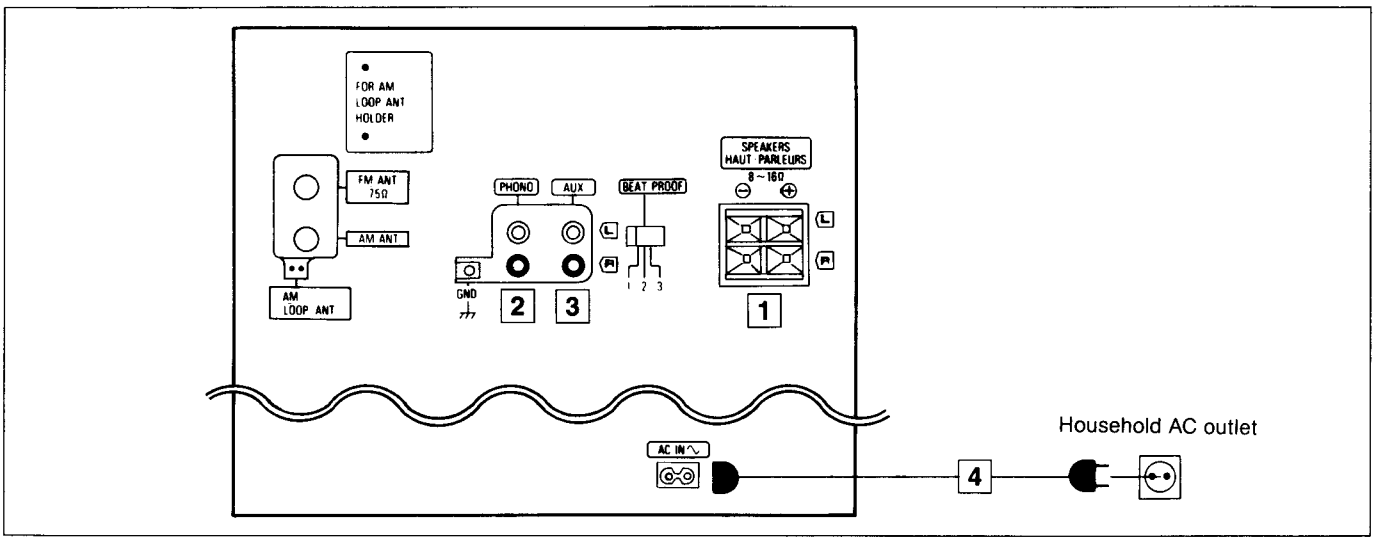
RQT4389ZAA

Obs:
Apparaten innehåller laser
Komponent av höger laserklass
än klass 1.





■ CONNECTIONS



1 "SPEAKERS" terminals

The impedance of any speaker used with this unit must be 8–16 ohms.
Be sure to connect the striped cords to the negative terminals.

2 "PHONO" terminals

Connect the turntable which was especially designed for use with this system, to these terminals.

■ "GND" terminal

This terminal is for use with turntables which have a ground wire.

3 "AUX" terminals

Connect a second tape deck (for playback only) etc.

4 AC power supply cord

Connect this cord only after all other cables have been connected.
Note:
Configuration of the AC outlet and AC power supply cord differ according to area.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:
- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of the amplifier are used.

If this occurs, follow the procedure outlines below:
1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

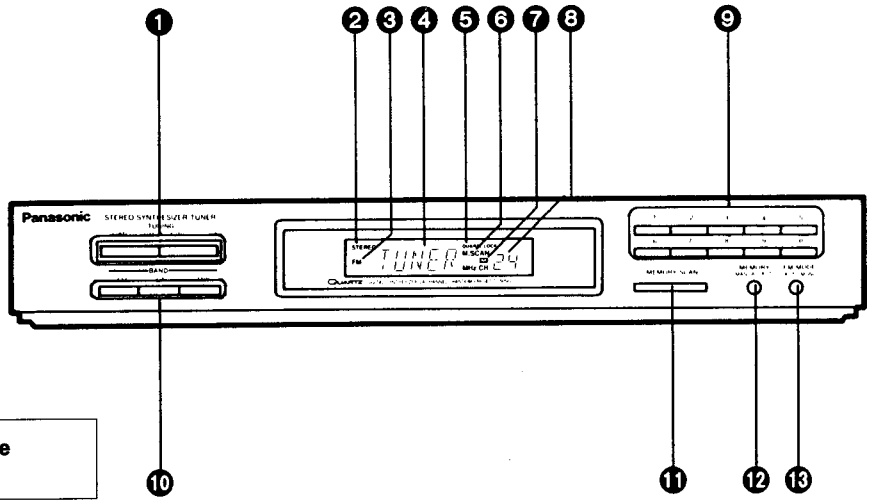
Note:
When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

Disconnect AC power, Discharge both Power Supply Capacitors C801 and C802 through a 10Ω, 5W resistor to ground.
DO NOT SHORT-CIRCUIT DIRECTLY (with a screwdriver blade, for instance), as this may distroy solid state devices.
After repairs are completed, restore power gradually using a variac, to avoid overcurrent.
Current consumption at 230V, 50Hz in NO SIGNAL mode should be 152mA.

■ FRONT PANEL CONTROLS AND FUNCTIONS

Tuner section



The indication AM used here includes both MW and LW.

❶ Tuning buttons (TUNING)
These buttons are used for tuning to the desired broadcast station.

❷ FM stereo indicator (STEREO)
This indicator automatically illuminates when an FM stereo broadcast is being received.
It will not illuminate if the FM mode selector is set to the monaural mode.

❸ Band indicator (FM, LW, MW)
This indicator indicates the band selected by using the band selector.

❹ Digital frequency/input display
This display shows the sound source selected by pressing one of the input selectors. If the "tuner" input selector is pressed, there will be a change to the frequency after the source is indicated.

❺ Quartz-lock indicator (QUARTZ LOCK)
This indicator illuminates when the tuner is precisely tuned to a broadcast station.

❻ Memory scan indicator (M.SCAN)
This illuminates when the memory scanning is activated.

❼ Memory indicator (M)
This indicator illuminates when the memory button is pressed.

❽ Channel display
This display shows the channel number selected by one of the preset-tuning buttons.

❾ Preset-tuning buttons (1–0) (24 CHANNEL RANDOM PRESET TUNING)
These buttons are used to preset broadcast frequencies into the memory of this unit, and are also pressed to recall the desired preset stations.

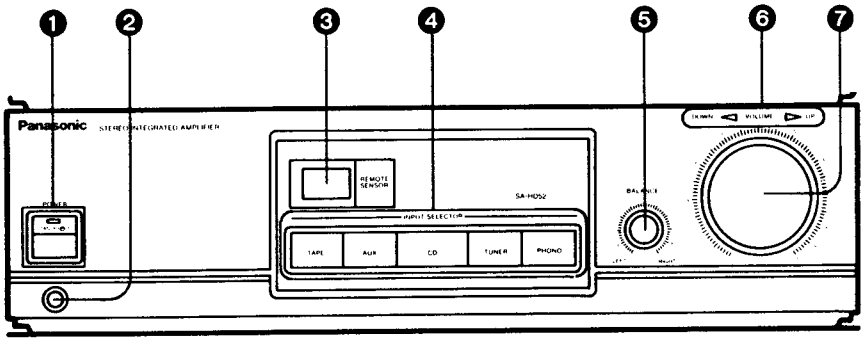
❿ Band selectors (BAND)
These selectors are used to select the band.

⓫ Memory scan button (MEMORY SCAN)
This button can be used to locate a desired broadcast station; each broadcast station is selected for about four seconds.

⓬ Memory button (MEMORY)
This button can be used when presetting broadcast station frequencies to the memory.

⓭ FM mode selector (FM MODE)
This unit automatically switches to the stereo mode when an FM stereo broadcast is received. This selector is used to select the mode (stereo or monaural) of FM broadcast signals.

Amplifier section



❶ Power "STANDBY ⏻/ON" switch and indicator (POWER/STANDBY ⏻/ON)

This switch switches ON and OFF the secondary circuit power only. The unit is in the "standby" condition when this switch is set to the STANDBY ⏻ position. Regardless of the switch setting, the primary circuit is always "live" as long as the power cord is connected to an electrical outlet.

- The indicator will illuminate when the unit is in "STANDBY" condition.

❷ Headphones jack (PHONES)

❸ Remote-control signal receptor (REMOTE SENSOR)

Receives the signals from the remote-control transmitter.

❹ Input selectors (INPUT SELECTOR)

These selectors are used to select the sound source to be heard, such as a phono disc, radio broadcast, etc.

❺ Balance control (BALANCE)

This control can be used to adjust the balance of sound heard from the left and right speaker systems.

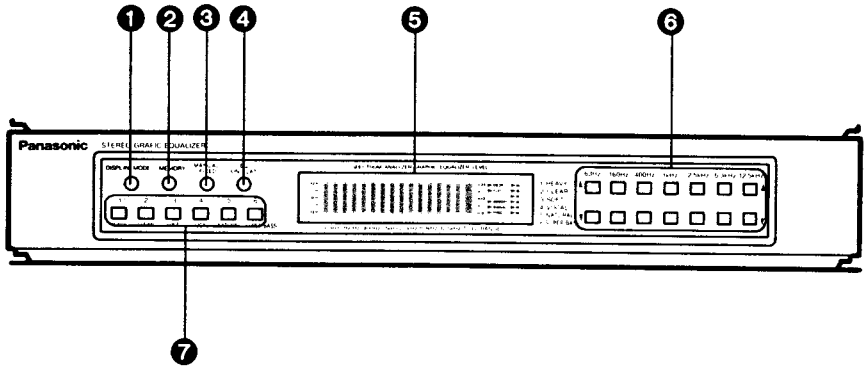
❻ Volume-level adjustment indicators

One of these indicators flashes continually to indicate when the sound volume level is being adjusted by using the volume controls on the remote-control transmitter.

UP (▷): When increasing the volume level.
DOWN (◁): When reducing the volume level.

❼ Volume control (VOLUME)

Graphic equalizer section



❶ Display mode button (DISPLAY MODE)

This button can be used to change any of five types of spectrum display modes.

❷ Memory button (MEMORY)

This button is used to program the equalization curve into the memory.

❸ Memory mode-select button (MANUAL/FIXED)

This button is used to select the equalization memory mode to be used.

MANUAL: Select this mode to program a desired curve to the unit's memory or to retrieve a curve that you have programmed.
FIXED: Select this mode to retrieve a curve that was originally pre-programmed to the unit's memory.

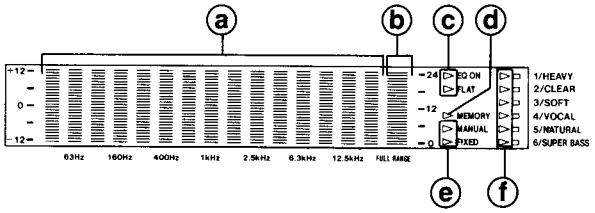
❹ Equalization mode-select button (EQ ON/FLAT)

This button is used to switch the equalization correction function "EQ ON" and "FLAT". Each time a button is pressed, the mode changes alternately to one or the other of the following modes.

EQ ON: Select this mode to make an equalization correction.
FLAT: Select this mode if no equalization correction is desired.

Note that the "EQ ON" mode is automatically selected if a preset-memory button or an equalizer level-control button is pressed while this button is set to the "FLAT" mode.

❺ Display section



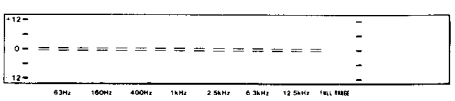
ⓐ Spectrum/Equalization display

■ Spectrum displays

The 5 types of display can be shown.

■ Equalization-level display

The amount of correction is displayed by a series of lines (=) for each sound range (frequency range).



This will be shown for 3 seconds when any of the operation buttons of graphic equalizer (except the display mode button) is pressed.

ⓑ Full range display

This shows the full range level.

ⓒ Equalization-mode indicators

EQ ON: Indicates that the equalization effect has been switched ON.
FLAT: Indicates that the equalization effect has been switched OFF.

ⓓ Equalization-memory indicator (MEMORY)
This indicator illuminates when the memory button is pressed, thus indicating that an equalization curve can be programmed into the memory.

ⓔ Memory-mode indicators
MANUAL: Indicates that an equalization curve that you programmed into the memory can be retrieved.

FIXED: Indicates that one of the equalization curves that were originally programmed into the memory can be retrieved.

ⓕ Equalization-preset indicators (1–6)
The indicator corresponding to the pressed preset-memory button will illuminate.

MANUAL: Indicates an equalization curve that you programmed into the memory.

FIXED: Indicates one of the six equalization curves that were originally programmed into the memory.

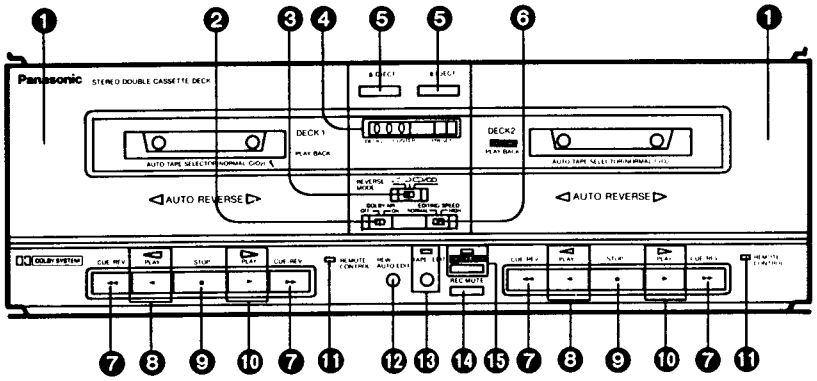
❻ Equalizer level-control buttons (EQUALIZER LEVEL CONTROL)
These buttons are used for adjustment of the equalization level.

Upper row: These buttons are used to increase the level of each sound range (frequency range).

Lower row: These buttons are used to reduce the level of each sound range (frequency range).

❼ Preset-memory buttons (1–6)
These buttons are used to program an equalization curve into the memory, or to retrieve a curve originally programmed into the unit's memory.

Cassette deck section



❶ Cassette holder

❷ Dolby noise-reduction switch (DOLBY NR)
This switch can be used to reduce the amount of the characteristic "hissing" noise heard from the tape.

❸ Reverse-mode selector (REVERSE MODE)
This selector is used for the selection of the desire reverse mode for recording or playback.

❹ Tape deck 2 counter/reset button (DECK 2 COUNTER/RESET)
This tape counter shows the amount of tape movement of the tape in deck 2.
The reset button can be used to reset the tape counter reading to "000"

Note:
To reset the tape counter, be sure to press the reset button completely. Otherwise, the tape counter may not operate correctly.

❺ Eject button (▲ EJECT)
This button is used to open the cassette holder.

❻ Edit-recording tape-speed selector (EDITING SPEED)
This selector is used to select the recording speed when a tape-to-tape recording is made.

❼ Fast-forward/cue, rewind/review buttons (◀◀ CUE/REV ▶▶)
These buttons are used to advance or review the tape. During playback these buttons are used to cue or review while listening to the contents at high speed.

❽ Reverse-side playback button/indicator (◀ PLAY)
This button is used to start the playback or recording of side "B" of the cassette.
The indicator illuminates during playback or recording, and flashes in the recording stand-by mode.
(The tape will move in the right-to-left direction.)

❾ Stop button (■ STOP)
This button is used to stop the tape movement.

❿ Forward-side playback button/indicator (▶ PLAY)
This button is used to start the playback or recording (of deck 2 only) of side "A" of the cassette.
The indicator illuminates during playback or recording, and flashes in the recording stand-by mode. (The tape will move in the left-to-right direction.)

⓫ Remote-control indicator (REMOTE CONTROL)
This indicator illuminates to indicate that this unit can now be controlled by the remote-control transmitter.

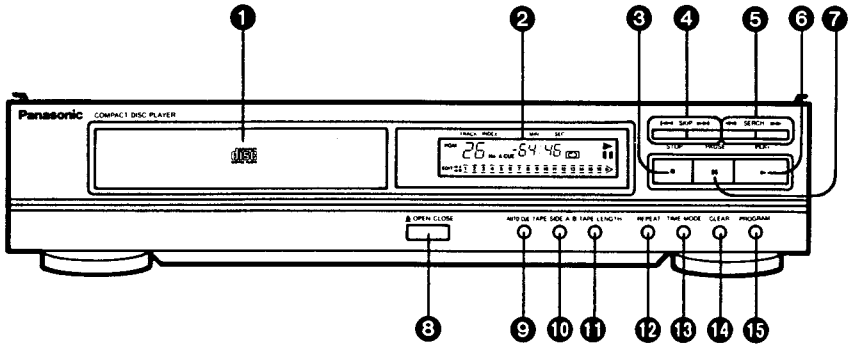
⓬ Rewind auto edit button (REW AUTO EDIT)
This button is used to rewind the tape to the beginning and start a tape-to-tape automatic recording.

⓭ Tape edit button/indicator (TAPE EDIT)
This button is used to start a tape-to-tape recording, simultaneously starting tape deck 1 (the playback deck) and tape deck 2 (the recording deck). The indicator illuminates in this mode.

⓮ Record-muting button (REC MUTE)
This button is used while recording a tape on deck 2 to insert a silent interval on the tape.

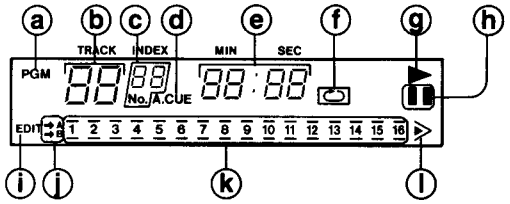
⓯ Recording pause button/indicator (REC PAUSE)
This button is used to activate the recording pause mode. The indicator will illuminate when in this mode.

Compact disc section



❶ Disc holder

❷ Display section



ⓐ **Program play indicator (PGM)**

ⓑ **Track number display (TRACK)**

ⓒ **Programmed number display (No.)**

ⓓ **Auto cue indicator (A. CUE)**

ⓔ **Time display**

ⓕ **Repeat play indicator (↻)**

ⓖ **Play indicator (▶)**

ⓗ **Pause indicator (❚❚)**

ⓘ **Compact disc edit indicator (EDIT)**

ⓙ **Tape side indicator (➡A, ➡B)**

ⓚ **Track number indicator (1–16)**

Ⓛ **"Over" mark (≫)**
This indicator lights if the total number of tracks on the disc is 17 or more.

❸ Stop button (■ STOP)
This button can be used to stop disc play, as well as to cancel the various play modes.

❹ Skip buttons (⏮ SKIP ⏭)
These buttons can be used to skip by track in the forward or reverse direction.

❺ Search buttons (◀◀ SEARCH ▶▶)
These buttons can be used to move rapidly forward or backward on the disc during play. The search speed is slow when the button is pressed at first and becomes faster if the button is pressed and held continuously.

❻ Play button (▶ PLAY)

❼ Pause button (❚❚ PAUSE)

❽ Disc holder open/close button (▲ OPEN/CLOSE)

❾ Auto cue button (AUTO CUE)
Pressing this button enables the unit to stop at the beginning of every track and switch to the play standby mode.

❿ Tape-side select button (SIDE A/B)
When recording compact discs to tape, this button can be used to check the number of tracks and amount of tape left over for side A or B.

⓫ Edit tape length button (TAPE LENGTH)
When compact discs are to be recorded to tape, this button can be used to calculate the number of tracks that can be recorded on each side of the tape, depending on the length of the cassette tape used, so that as little tape as possible is wasted.

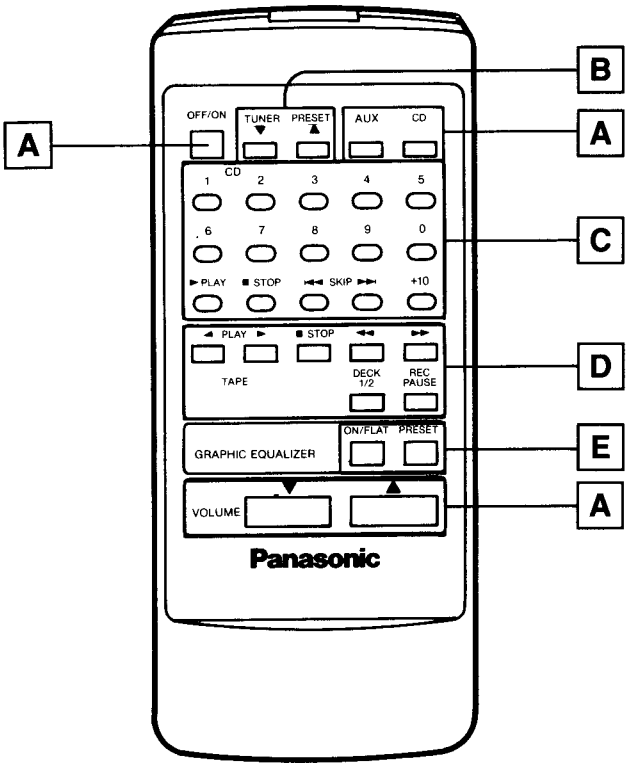
⓬ Repeat button (REPEAT)

⓭ Time mode select button (TIME MODE)

⓮ Clear button (CLEAR)
Each pressing this button makes one track cleared from the programmed sequence.

⓯ Program button (PROGRAM)
Pressing this button initiates the program play mode.
You can then enter specific tracks using the numeric buttons at the remote control transmitter.

■ REMOTE CONTROL OPERATION



For detailed information concerning operation steps, etc., please refer to the appropriate page for each unit and the respective operation instructions. For this system, you can listen to tapes or compact discs, etc., by operating the remote-control transmitter without using the input selectors.

A Amplifier controls

OFF/ON

Press this button to switch the unit ON or to the stand-by condition. Note that there is no need to press this button if the unit's power is ON. (If it is pressed, the unit will be switched to the stand-by mode.)

AUX, CD

These buttons are used to select the program source (AUX, CD)

AUX: Press to listen to sound from equipment connected to the "AUX" terminals of this unit.
CD: Press to listen to compact discs.

VOLUME

For adjustment of the volume level.
▲: To increase the volume level.
▼: To decrease the volume level.

B Tuner controls

▼-TUNER PRESET-▲

To select a preset channel.
(There will be an automatically change of the input selector.)
▲: Press to change to a higher channel.
▼: Press to change to a lower channel.
(If either button is pressed and held, the channel will change continuously.)

C Compact-disc controls

1~0, +10

These buttons are used to specify the desired track number.
•The play begins automatically from the selected track **when a track is selected while the unit is in the stop mode.**

To select the specific track number

•**Tracks 1–9:** Press the appropriate numeric button 1–9 directly.
•**Tracks 10 and up:** First press +10, then 1 – 0. (Press +10 twice and 0 for 20, +10 three times and 0 for 30, and so on.)

▶ PLAY

Press this button to start disc play.

■ STOP

Press this button to stop disc play.

⏮ SKIP ⏭

Press one of these buttons to select the desired track.

⏮: for a prior track
⏭: for a track ahead

D Cassette tape deck controls

◀ PLAY ▶

Press this button to start the tape.
▶: "A" side (side facing outward)
◀: "B" side
(There will be an automatic change of the input selector.)

STOP

Press this button to stop the tape.

◀◀ ▶▶

Press one of these buttons to forward or rewind the tape. Hold one of these buttons to cue or review the tape.

DECK 1/2

Press to select the deck ("DECK 1" or "DECK 2") to be used.

REC PAUSE

Press to change to the recording stand-by mode.

E Graphic equalizer controls

ON/FLAT

Press to select the equalizer effect on or off.

PRESET

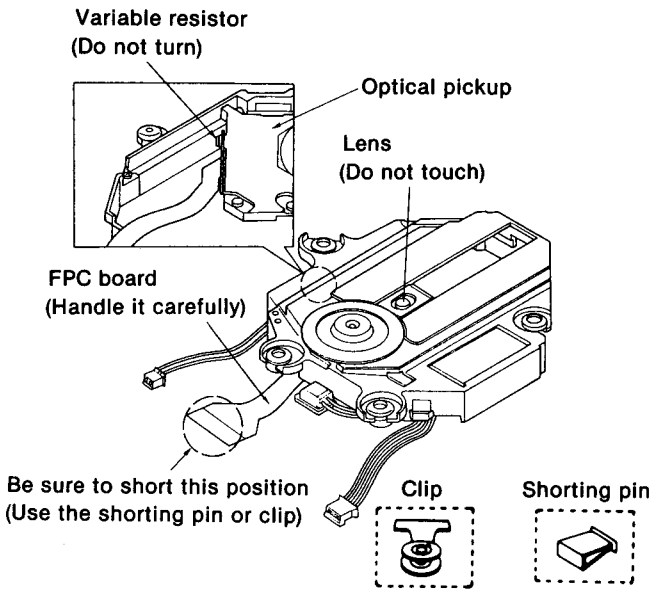
First press and hold to select the manual or fixed program mode, and then press to select the preset channel of the equalization curve.

■ HANDLING PRECAUTIONS FOR TRAVERSE DECK

The laser diode in the traverse deck (optical pickup) may break down due to potential difference caused by static electricity of clothes or human body.
So, be careful of electrostatic breakdown during repair of the traverse deck (optical pickup).

- **Handling of traverse deck (optical pickup)**

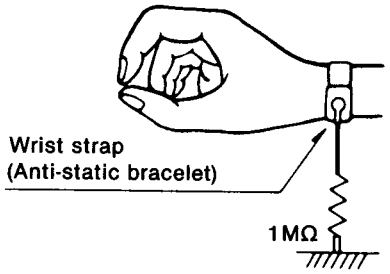
1. Do not subject the traverse deck (optical pickup) to static electricity as it is extremely sensitive to electrical shock.
2. To prevent the breakdown of the laser diode, an antistatic shorting pin is inserted into the flexible board (FPC board).
   When removing or connecting the short pin, finish the job in as short time as possible.
3. Take care not to apply excessive stress to the flexible board (FPC board).
4. Do not turn the variable resistor (laser power adjustment). It has already been adjusted.

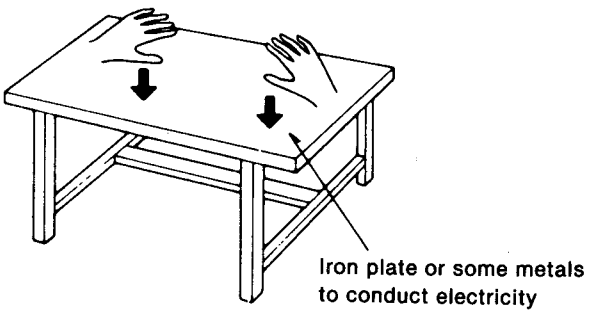


- **Grounding for electrostatic breakdown prevention**

1. Human body grounding
   Use the anti-static wrist strap to discharge the static electricity from your body.
2. Work table grounding
   Put a conductive material (sheet) or steel sheet on the area where the optical pickup is placed, and ground the sheet.

Caution:
The static electricity of your clothes will not be grounded through the wrist strap. So, take care not to let your clothes touch the traverse deck (optical pickup).

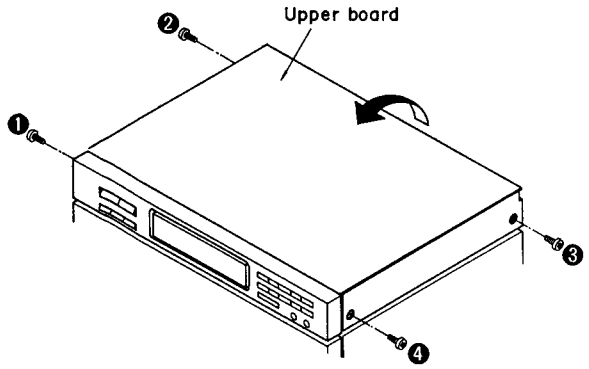




■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	Removal of the upper board

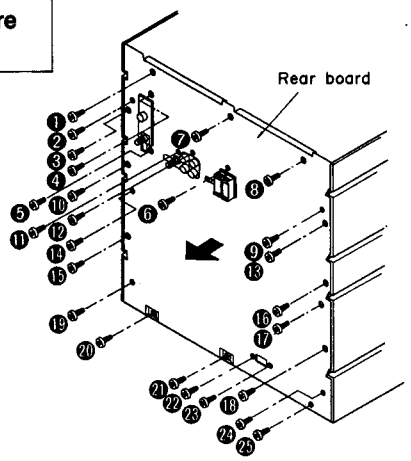
Procedure 1



1. Remove the 4 screws (❶~❹).
2. Remove the upper board in the direction of arrow.

Ref. No. 2	Removal of the rear board

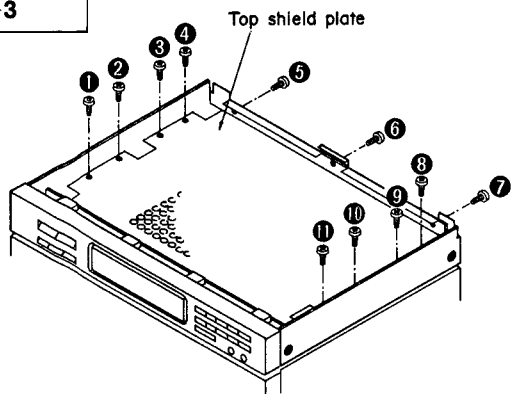
Procedure 1→2



1. Remove the 25 screws (❶~㉕).
2. Remove the rear board in the direction of arrow.

Ref. No. 3	Removal of the top shield plate

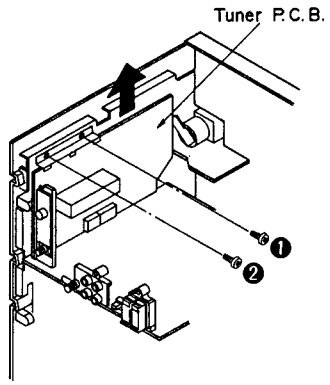
Procedure 1→3



• Remove the 11 screws (❶~⓫).

Ref. No. 4	Removal of the tuner P.C.B.

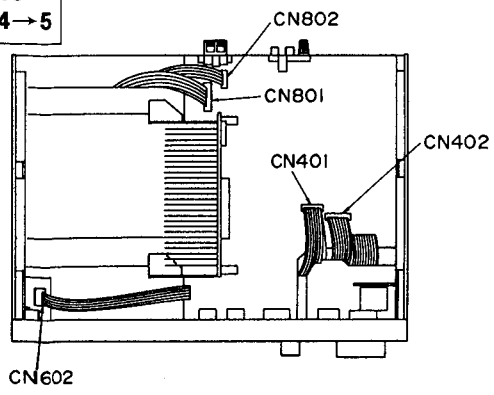
Procedure 1→2→3→4



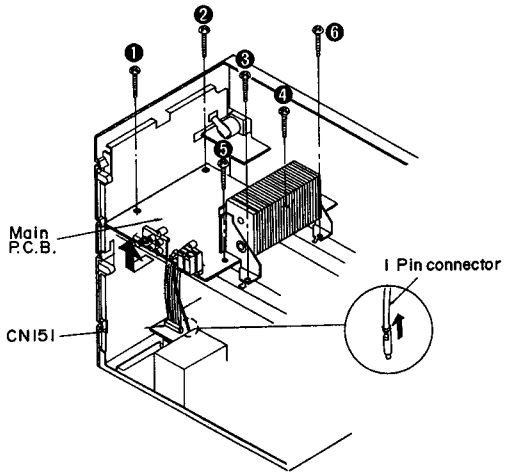
1. Remove the 2 screws (❶, ❷).

Ref. No. 5	Removal of the main P.C.B.

Procedure 1→2→3→4→5



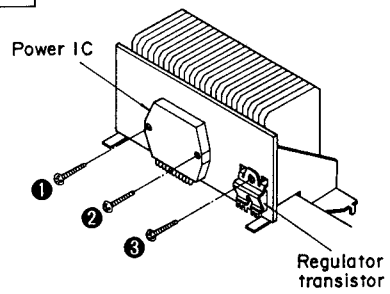
1. Remove the 6 flat cables (CN151, CN401, CN402, CN602, CN801, CN802).
2. Remove the 1 pin connector.



3. Remove the 6 screws (❶~❻).
4. Remove the main P.C.B. in the direction of arrow.

Ref. No. 6	Removal of the power IC and regulator transistor

Procedure
1→2→3→4→5→6

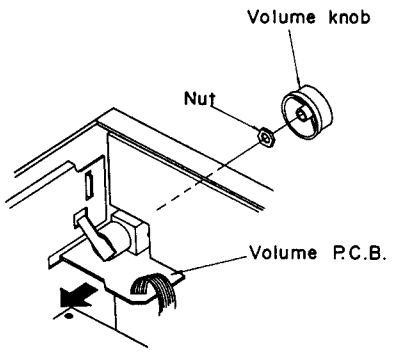


1. Remove the 3 screws (❶~❸).
2. Unsolder the power IC and regulator transistor.

- **When mounting the power IC or regulator transistor.** Apply silicone compound (RFKX0002) to the rear side of power IC or regulator transistor.

Ref. No. 7	Removal of the volume P.C.B.

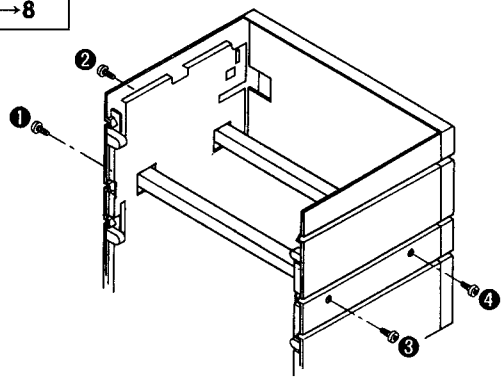
Procedure
1→7



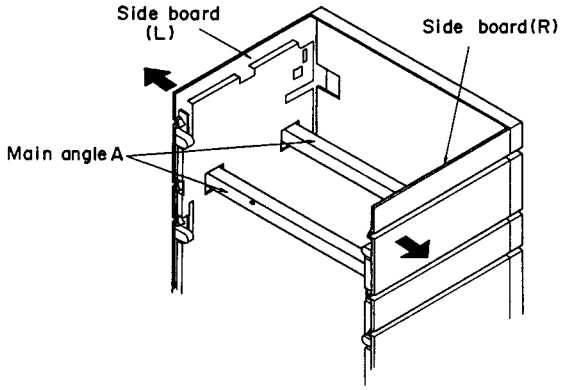
1. Pull out the volume knob.
2. Remove the nut.
3. Remove the volume P.C.B. in the direction of arrow.

Ref. No. 8	Removal of the main angle

Procedure
1→2→3→4→5→7→8



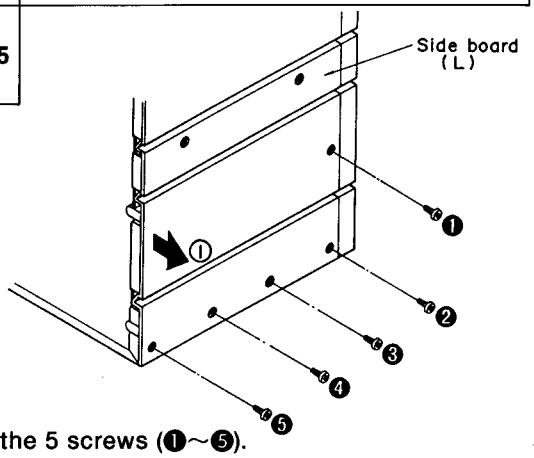
1. Remove the 4 screws (❶~❹).



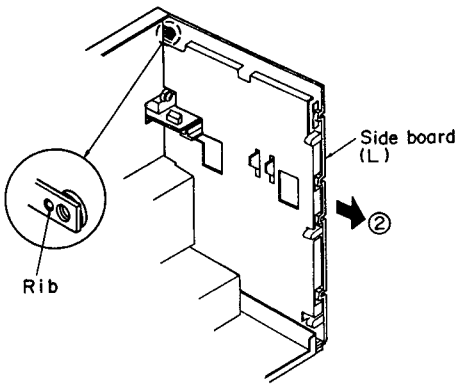
2. Spread out the side boards (L and R) slightly and remove main angle A.

Ref. No. 9	Removal of the side board (L)

Procedure
1→2→3→4→5→7→8→9

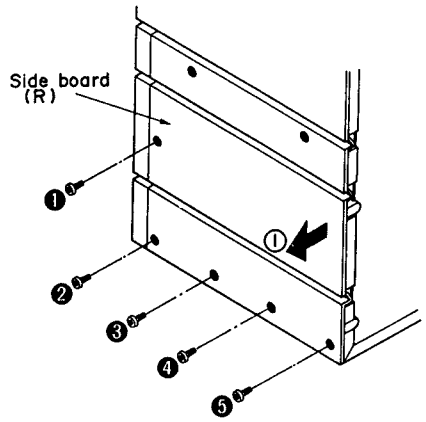


1. Remove the 5 screws (❶~❺).
2. Remove the side board (L) in the direction of arrow ①.

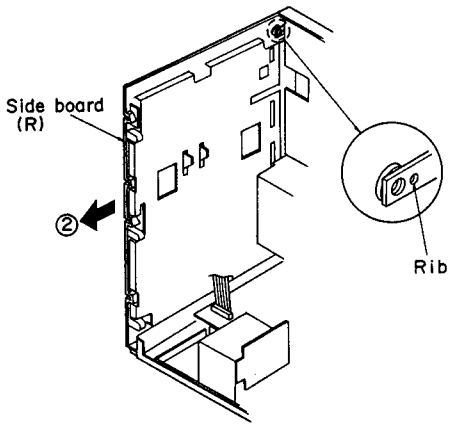


3. Release the rib and then remove the side board (L) in the direction of arrow ②.

Ref. No. 10	Removal of the side board (R)
Procedure 1→2→3→4→5 →7→8→10	

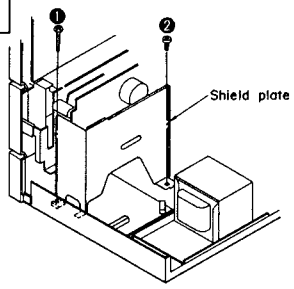


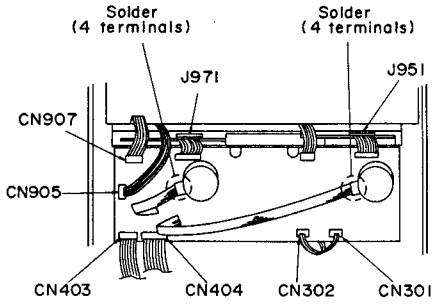
1. Remove the 5 screws (❶~❺).
2. Remove the side board (R) in the direction of arrow ①.

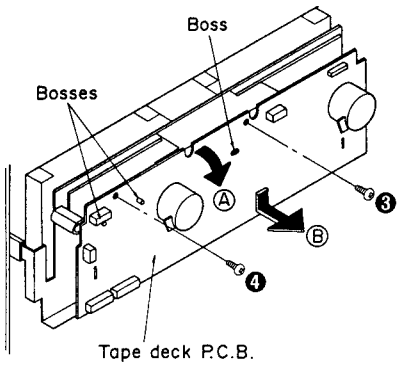


3. Release the rib and then remove the side board (R) in the direction of arrow ②.

Ref. No. 11	Removal of the tape deck P.C.B.
Procedure 1→2→3→4 →5→7→8→9 →10→11	

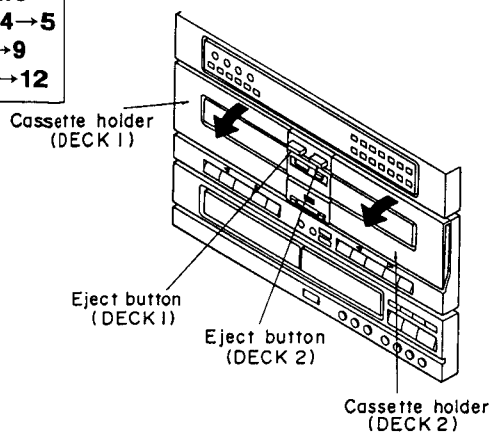




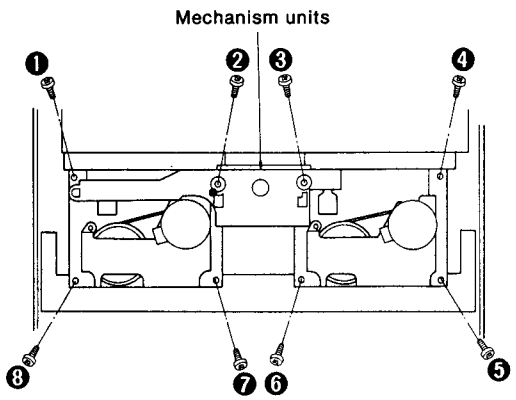


1. Remove the 2 screws (❶, ❷).
2. Remove the shield plate.
3. Remove the 2 connectors (CN301, CN302).
4. Remove the 6 flat cables (CN403, CN404, CN905, CN907, J951, J971).
5. Unsolder the 8 terminals of the flat cable.
6. Remove the 2 screws (❸, ❹).
7. Tilt the tape deck P.C.B. in the direction of arrow Ⓐ in order to remove the circuit board from the bosses.
8. Remove the tape deck P.C.B. in the direction of arrow Ⓑ, being careful of the hook.

Ref. No. 12	Removal of the mechanism units (DECK 1, DECK 2)
Procedure 1→2→3→4→5 →7→8→9 →10→11→12	

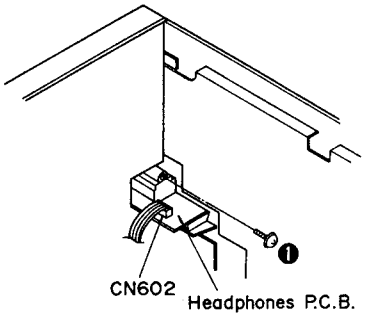


1. Push the eject button and open the cassette holder.



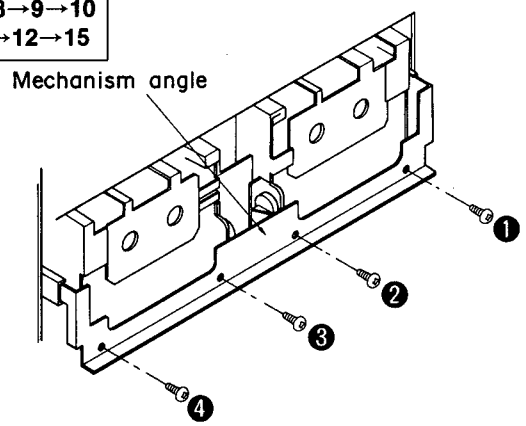
2. Remove the 8 screws (❶~❽).

Ref. No. 13	Removal of the headphones P.C.B.
Procedure 1→13	



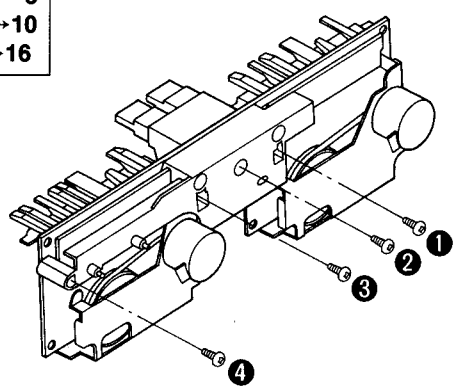
1. Remove the 1 flat cable (CN602).
2. Remove the 1 screw (❶).

Ref. No. 15	Removal of the mechanism angle
Procedure 1→2→3→4→5 →7→8→9→10 →11→12→15	



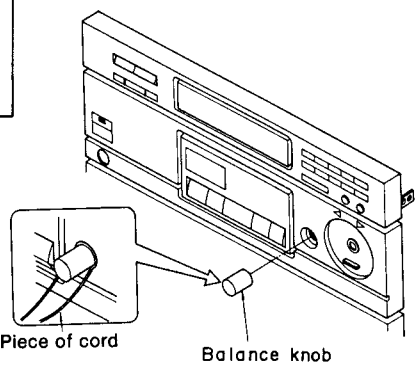
• Remove the 4 screws (❶~❹).

Ref. No. 16	Removal of the mechanism holder, eject button ass'y and tape counter
Procedure 1→2→3→4→5 →7→8→9→10 →11→12→16	



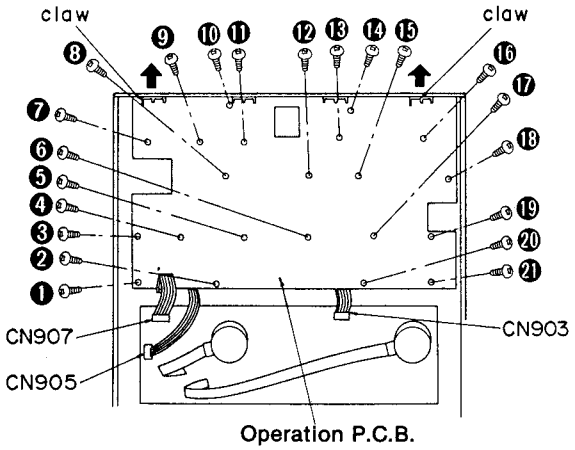
1. Remove the 4 screws (❶~❹).

Ref. No. 14	Removal of the operation P.C.B.
Procedure 1→2→3→4 →5→7→8→9 →10→14	

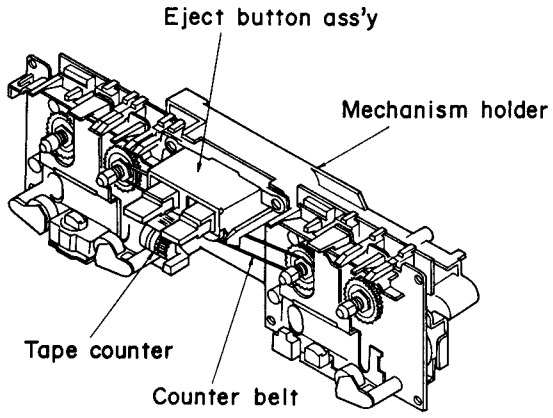


※ If the balance knob is difficult to remove, wrap a piece of cord or something similar around it to remove it.

1. Remove the balance knob.

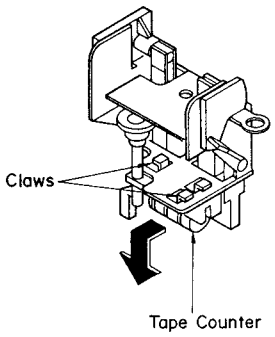


2. Remove the 3 flat cables (CN903, CN905, CN907).
3. Remove the 21 screws (❶~㉑).
4. Release the 2 claws.



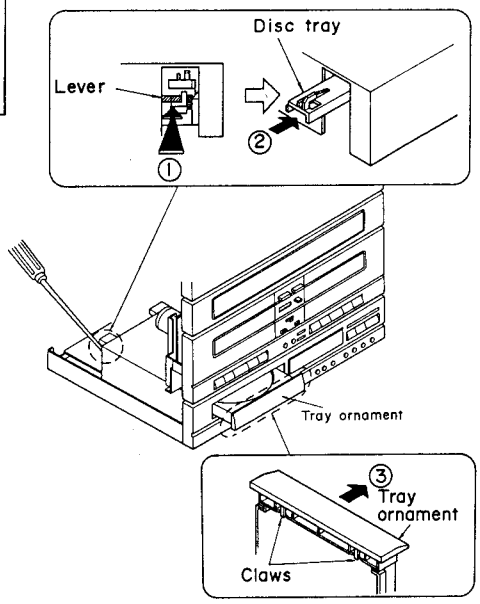
2. Remove the counter belt.

Ref. No. 17	Removal of the tape counter
Procedure 1→2→3→4→5 →7→8→9→10 →11→12→16 →17	

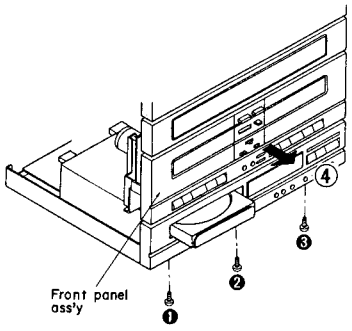


1. Release the 2 claws.
2. Remove the tape counter in the direction of arrow.

Ref. No. 19	Removal of the front panel ass'y
Procedure 1→2→3→4→5 →7→8→9→10 →19	

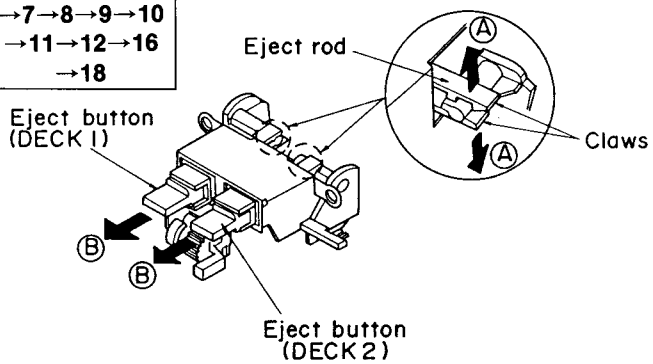


1. Push the lever as far as it will go in the direction of arrow ①, and then push the disc tray in the direction of arrow ②.
2. Release the 2 claws and then remove the tray ornament in the direction of arrow ③.

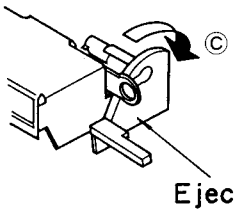


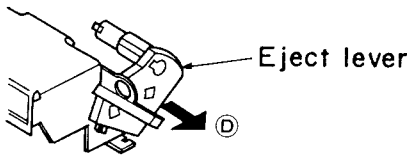
3. Remove the 3 screws (❶~❸).
4. Remove the front panel ass'y in the direction of arrow ④.

Ref. No. 18	Removal of the eject angle, eject button, eject rod and eject lever
Procedure 1→2→3→4→5 →7→8→9→10 →11→12→16 →18	



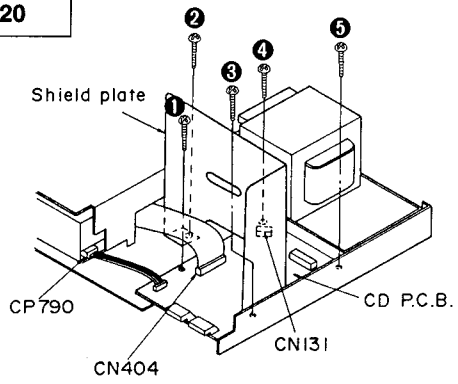
1. Release the claws of the eject rod in the direction of arrow Ⓐ, remove the eject buttons and the eject rod in the direction of arrow Ⓑ.





2. Turn the eject lever in the direction of arrow Ⓒ, and remove it in the direction of arrow Ⓓ.

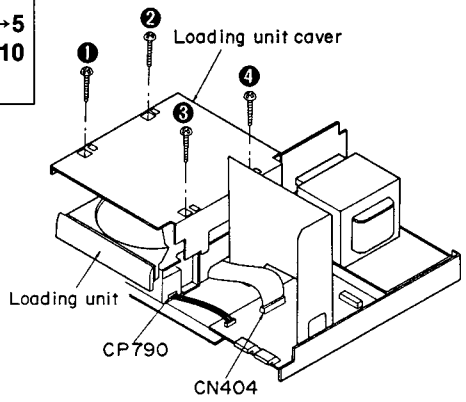
Ref. No. 20	Removal of the CD P.C.B.
Procedure 1→2→3→4→5 →7→8→9→10 →19→20	



1. Remove the 2 connectors (CN404, CP790).
2. Remove the 1 flat cable (CN131).
3. Remove the 5 screws (❶~❺).
4. Remove the shield plate.

Ref. No. 21	Removal of the loading unit

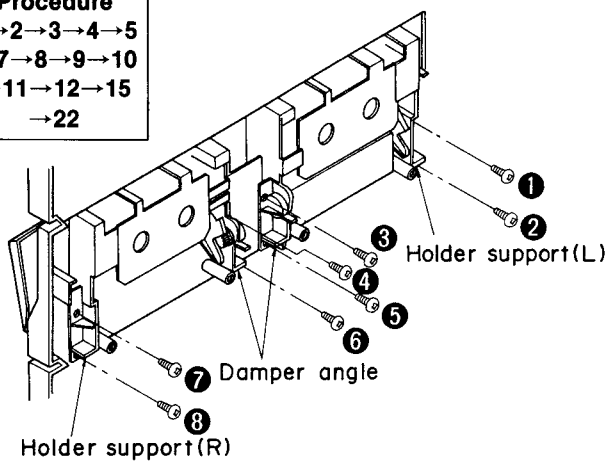
Procedure
1→2→3→4→5
→7→8→9→10
→19→21



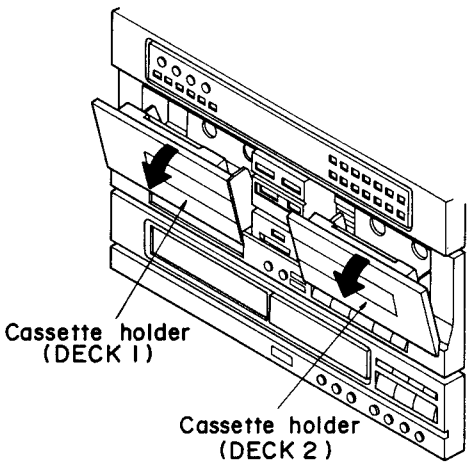
1. Remove the 2 connectors (CN404, CP790).
2. Remove the 4 screws (❶~❹).

Ref. No. 22	Removal of the cassette holder (DECK 1, DECK 2)

Procedure
1→2→3→4→5
→7→8→9→10
→11→12→15
→22



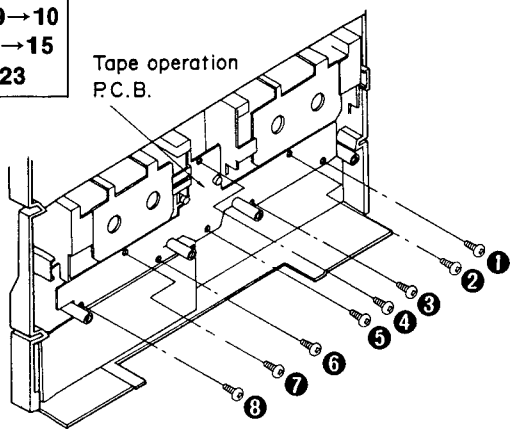
1. Remove the 8 screws (❶~❽).
2. Remove the damper angle and holder support.



3. Remove the cassette holder.

Ref. No. 23	Removal of the tape operation P.C.B.

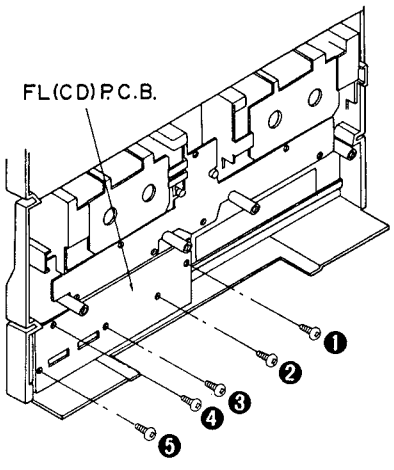
Procedure
1→2→3→4→5
→7→8→9→10
→11→12→15
→22→23



• Remove the 8 screws (❶~❽).

Ref. No. 24	Removal of the FL (CD) P.C.B.

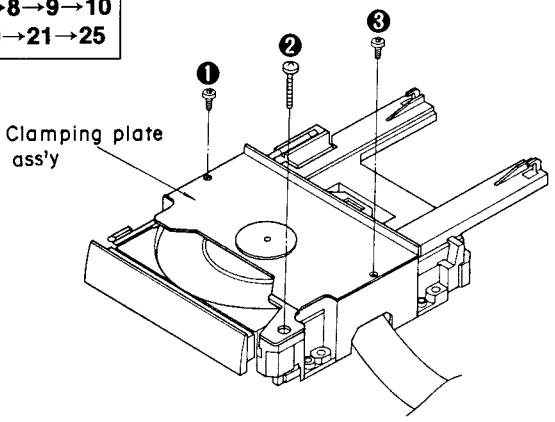
Procedure
1→2→3→4→5
→7→8→9→10
→11→12→15
→22→24



• Remove the 5 screws (❶~❺).

Ref. No. 25	Removal of the clamping plate ass'y

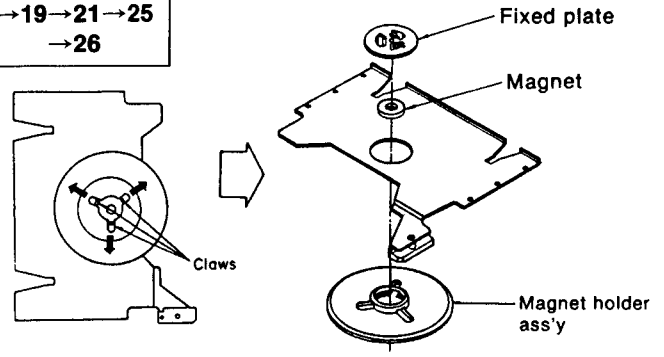
Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25



• Remove the 3 screws (❶~❸).

Ref. No. 26	Removal of the fixed plate, magnet and magnet holder

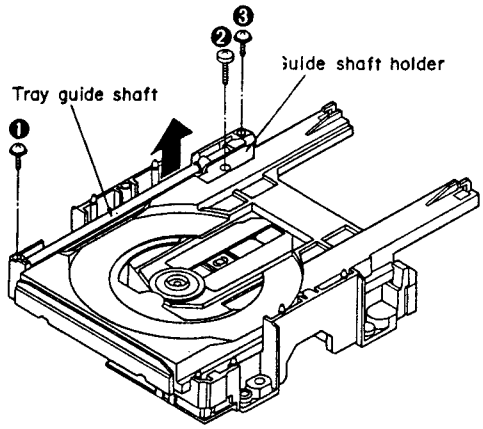
Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→26



• Release the 3 claws.

Ref. No. 27	Removal of the tray guide shaft and guide shaft holder

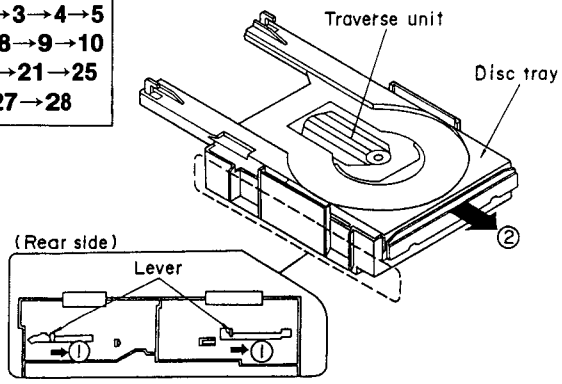
Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27



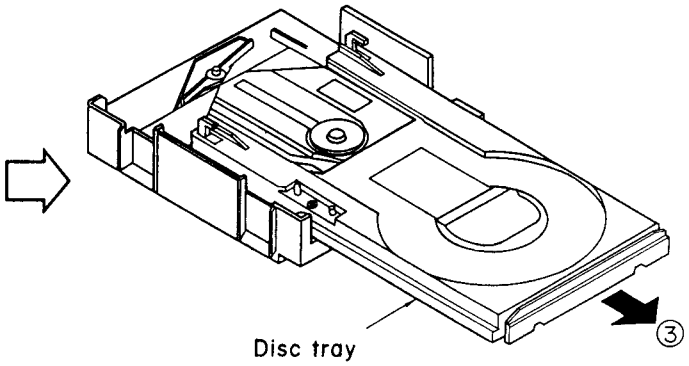
1. Remove the 3 screws (❶~❸).
2. Remove the tray guide shaft and guide shaft holder in the direction of arrow.

Ref. No. 28	Removal of the disc tray

Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→28



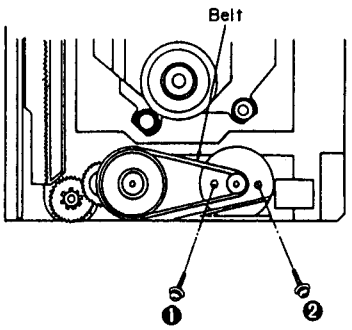
1. Push the levers in the direction of arrows ①. The traverse unit will lower and the disc tray will move slightly in the direction of arrow ②.



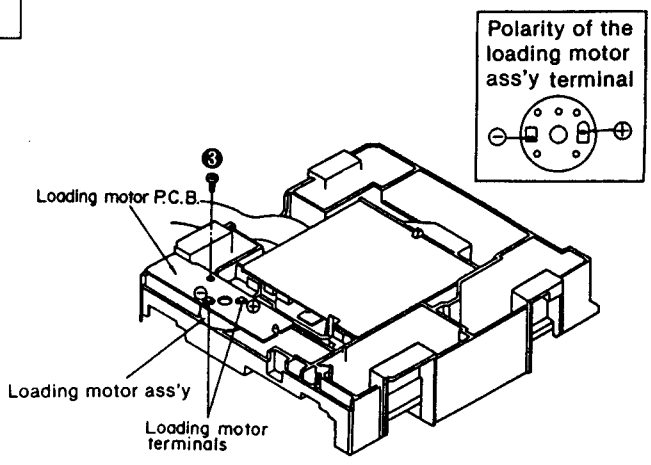
2. Pull the disc tray full in the direction of arrow ③.

Ref. No. 29	Removal of the loading motor and loading motor P.C.B.

Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→28→29



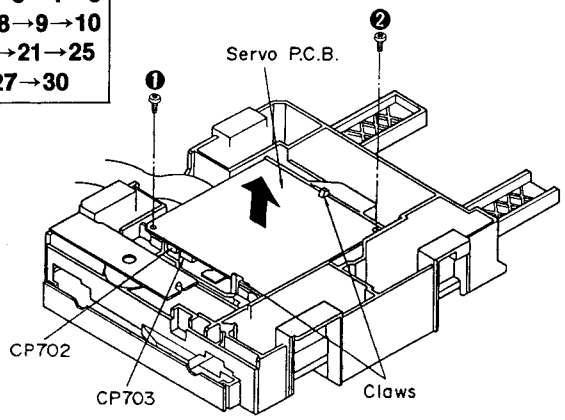
1. Remove the belt.
2. Remove the 2 screws (❶, ❷).



3. Remove the 1 screw (❸).
4. Unsolder the 2 terminals of loading motor.

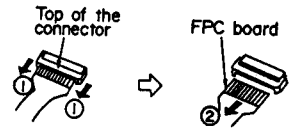
Ref. No. 30	Removal of the servo P.C.B.

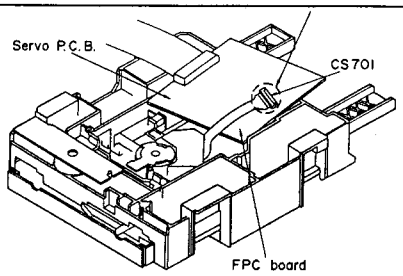
Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→30



1. Remove the 2 screws (❶, ❷).
2. Release the 2 claws.
3. Remove the servo P.C.B. in the direction of arrow.
4. Remove the 2 connectors (CP702, CP703).

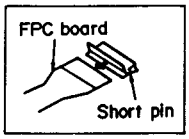
1. Push the top of the connector in the direction of arrow ①.
2. Remove the FPC board in the direction of arrow ②.





5. Remove the FPC board (CS701).

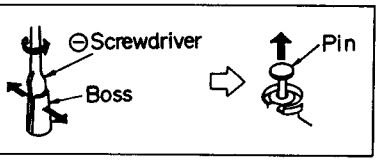
Caution:
Insert a short pin into the traverse unit FPC board. (Refer to "handling precautions for traverse deck" on page 10.)

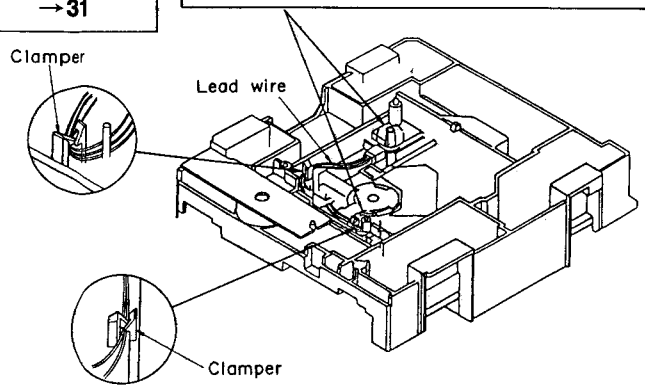


Ref. No. 31	Removal of the traverse unit

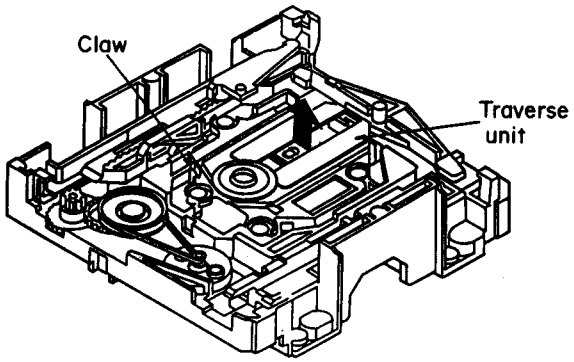
Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→28→30
→31

1. Widen the boss by using a regular screwdriver or similar object.
2. Pull out the pin.





1. Remove the lead wire from clamper.
2. Remove the 2 pins.

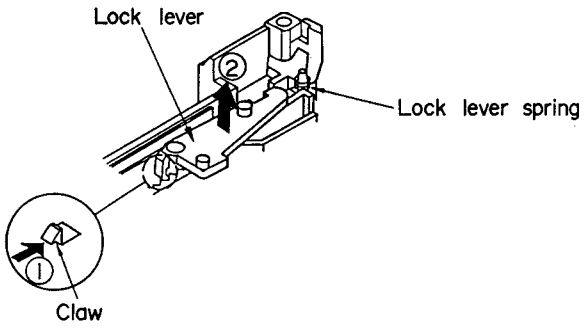


3. Release the claw and then remove the traverse unit in the direction of arrow.

Ref. No. 32	Removal of the lock lever

Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→28→32

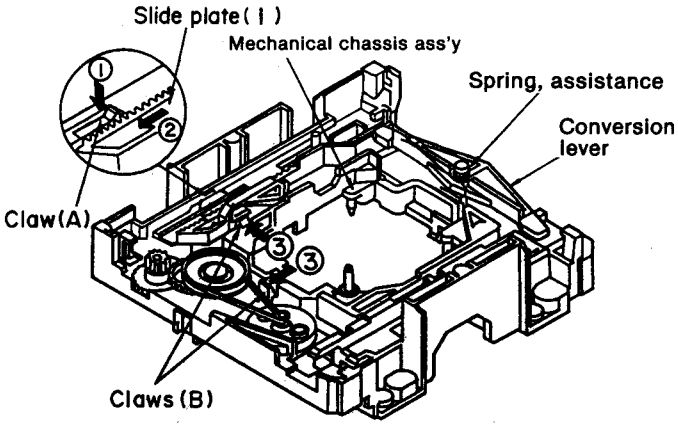
1. Remove the lock lever spring.
2. Release the claw in the direction of arrow ① and then remove the lock lever in the direction of arrow ②.



Ref. No. 33	Removal of the mechanical chassis ass'y and conversion lever

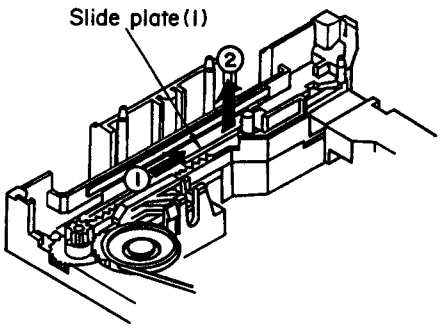
Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→28→30
→31→32→33

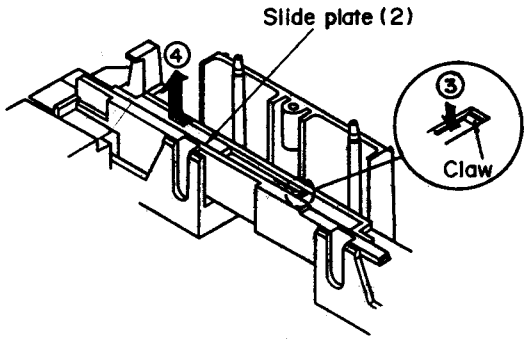
1. Remove the spring.
2. Move the slide plate (1) in the direction of arrow ② while pushing the claw (A) in the direction of arrow ①.
3. Remove the conversion lever.
4. While pushing the claws (B) in the direction of arrow ③, lift the mechanical chassis ass'y.



Ref. No. 34	Removal of the slide plate (1) and slide plate (2)

Procedure
1→2→3→4→5
→7→8→9→10
→19→21→25
→27→28→30
→31→32→33
→34





■ Removal of the slide plate (1)

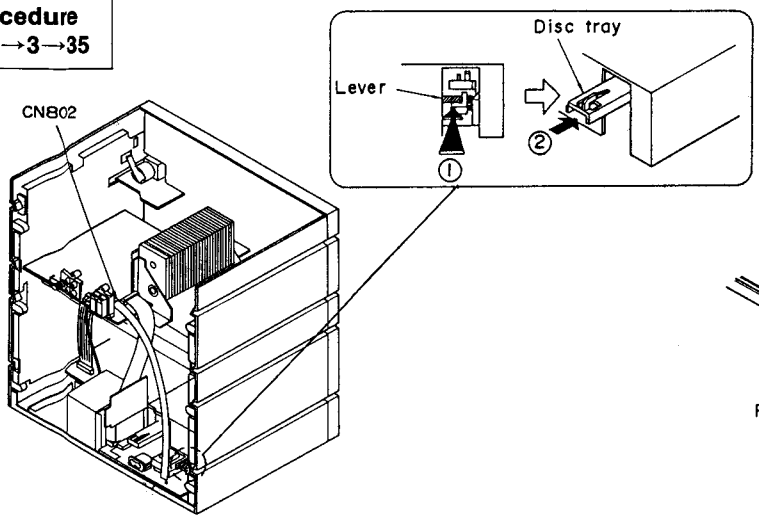
- After moving the slide plate (1) fully in the direction of arrow ①, lift it in the direction of arrow ②.

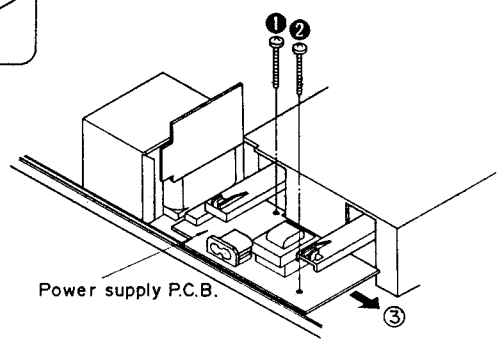
■ Removal of the slide plate (2)

- While pushing the claw in the direction of arrow ③, remove the slide plate (2) in the direction of arrow ④.

Ref. No. 35	Removal of the power supply P.C.B.

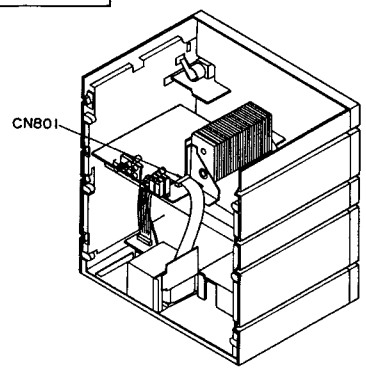
Procedure
1→2→3→35



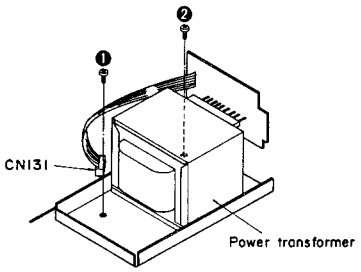


1. Remove the 1 flat cable (CN802).
2. Push the lever as far as it will go in the direction of arrow ①, and then push the disc tray in the direction of arrow ②.
3. Remove the 2 screws (❶, ❷).
4. Remove the power supply P.C.B. in the direction of arrow ③.

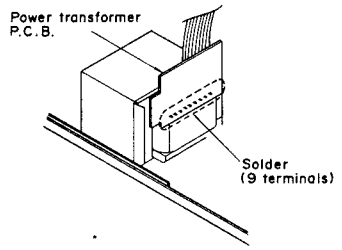
Ref. No. 36	Removal of the power transformer and power transformer P.C.B.
Procedure 1→2→3→35 →36	



1. Remove the 1 flat cable (CN801).



2. Remove the 1 flat cable (CN131).
3. Remove the 2 screws (❶, ❷).



4. Unsolder the 9 terminals of the power transformer P.C.B.

Ref. No. 37	Check of the main P.C.B. and tuner P.C.B.
Procedure 1→2→3→37	

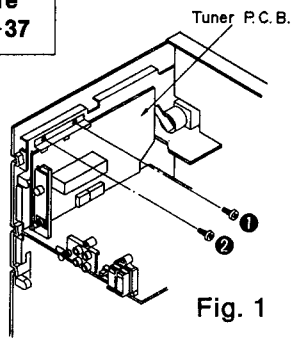


Fig. 1

1. Remove the 2 screws (❶, ❷).

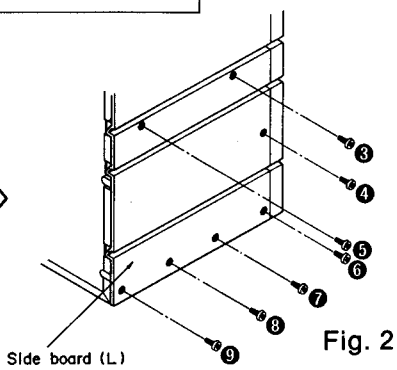


Fig. 2

2. Remove the 7 screws (❸~❾).
3. Remove the side board (L).

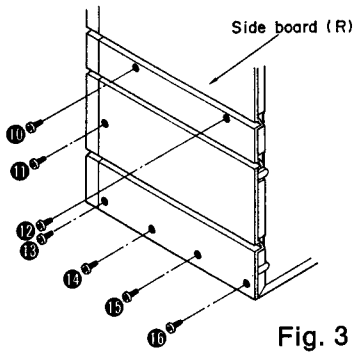


Fig. 3

4. Remove the 7 screws (❿~⓰).
5. Remove the side board (R).

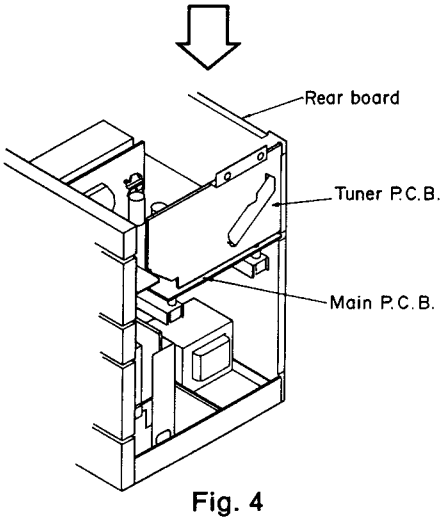


Fig. 4

6. Reinstall the rear board to the main P.C.B.
7. When checking the soldered surface of the tuner P.C.B. and replacing the parts, do as shown in the fig. 4.

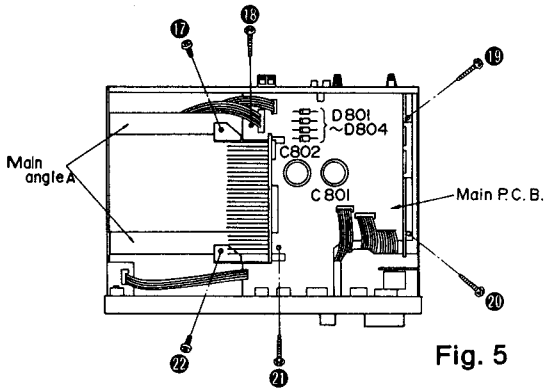


Fig. 5

8. Remove the 6 screws (⓱~㉒).
9. Remove the main angle A.
10. When checking the soldered surface of the main P.C.B. and replacing the parts, do as shown in the fig. 5.

Note:

Capacitors C801 and C802 and diodes D801 through D804 are high voltage, so be careful not to short-circuit them. For C801 and C802 in particular, first use a resistance to discharge the capacitors, and then check the main P.C.B. and replace the parts.

Ref. No. 38	Check of the operation P.C.B. and tape deck P.C.B.
Procedure 1→2→3→37 →38	

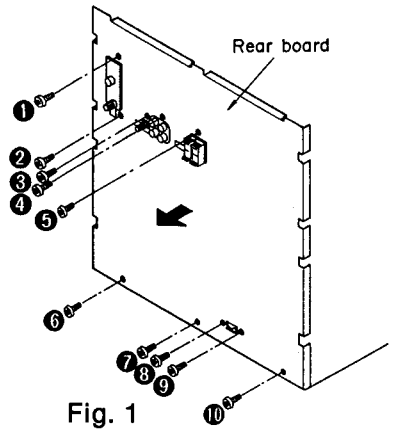


Fig. 1

1. Remove the 10 screws (❶~❿).
2. Remove the rear board.

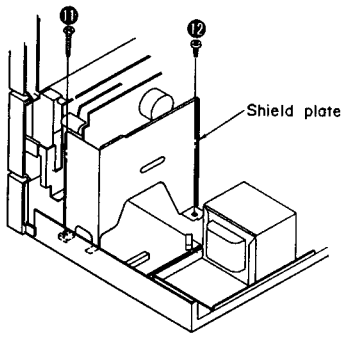


Fig. 2

3. Remove the 2 screws (⓫, ⓬).
4. Remove the shield plate.

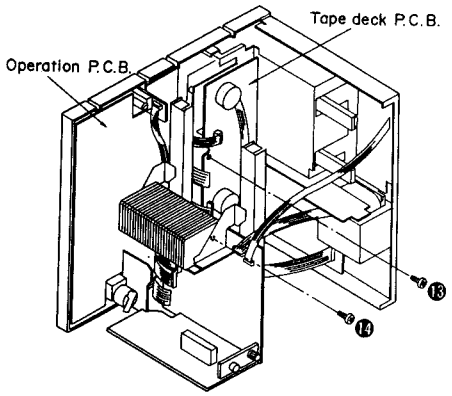


Fig. 3

5. When checking the soldered surface of the P.C.B., do as shown in the fig. 3.
6. Remove the 2 screws (⓭, ⓮).

Ref. No. 39	Check of the servo P.C.B.
Procedure 39	

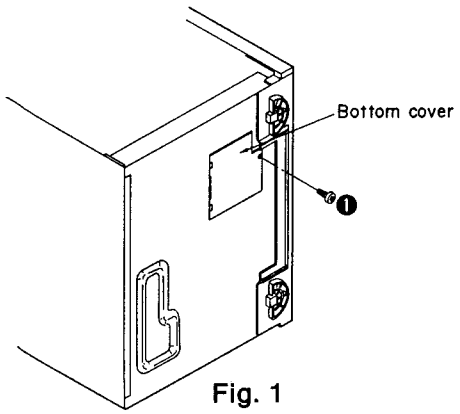


Fig. 1

1. Remove the 1 screw (❶).
2. Remove the bottom cover.

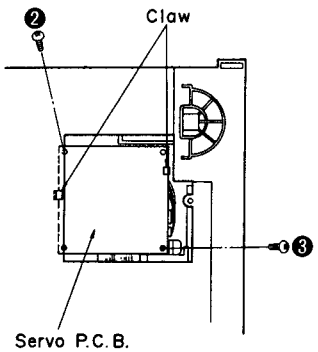


Fig. 2

3. Remove the 2 screws (❷, ❸).
4. Release the 2 claws.

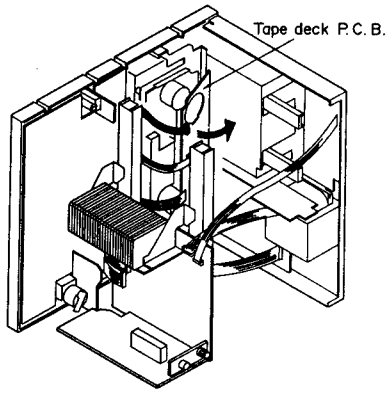


Fig. 4

7. Remove the tape deck P.C.B. in the direction of arrow.
8. When checking the soldered surface of the tape deck P.C.B. and replacing the parts, do as shown in the fig. 4.

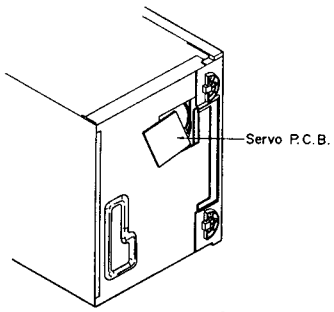


Fig. 3

5. When checking the soldered surface of the servo P.C.B. and replacing the parts, do as shown in the fig. 3.

Ref. No. 40	Check of the FL (CD) P.C.B. and CD P.C.B.
Procedure 1→2→37→40	

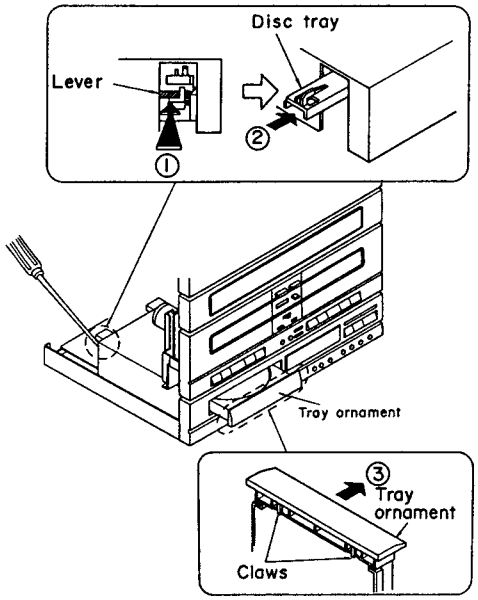


Fig. 1

1. Push the lever as far as it will go in the direction of arrow ①, and then push the disc tray in the direction of arrow ②.
2. Release the 2 claws and then remove the tray ornament in the direction of arrow ③.

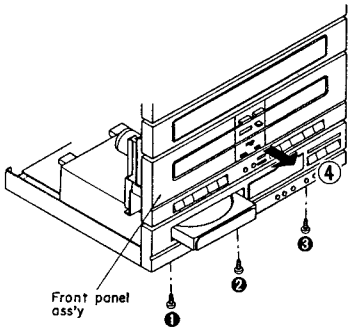


Fig. 2

3. Remove the 3 screws (❶~❸).
4. Remove the front panel ass'y in the direction of arrow ④.

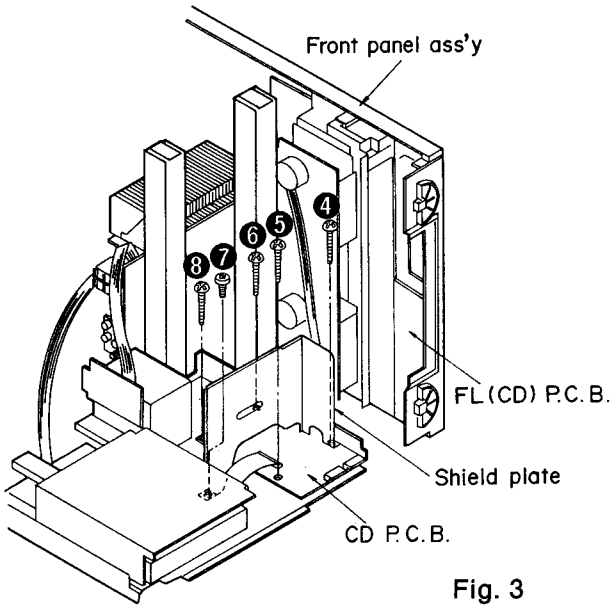


Fig. 3

5. When checking the soldered surface of the FL (CD) P.C.B. and replacing the parts, do as shown in the fig. 3.
6. Remove the 5 screws (❹~❽).

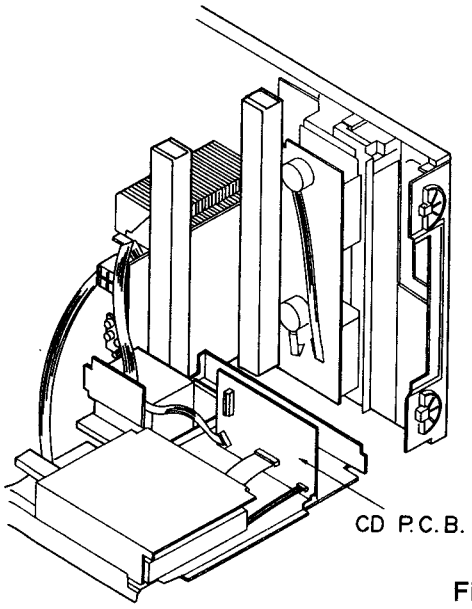
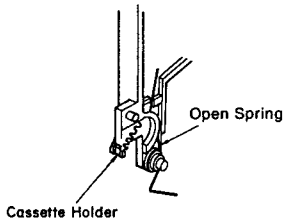


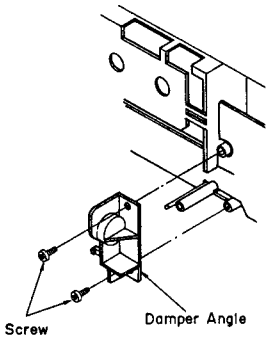
Fig. 4

7. When checking the soldered surface of the CD P.C.B. and replacing the parts, do as shown in the fig. 4.

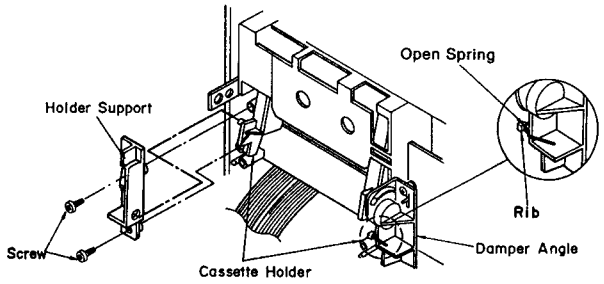
■ Installation of the cassette holder

(DECK 1, DECK 2)



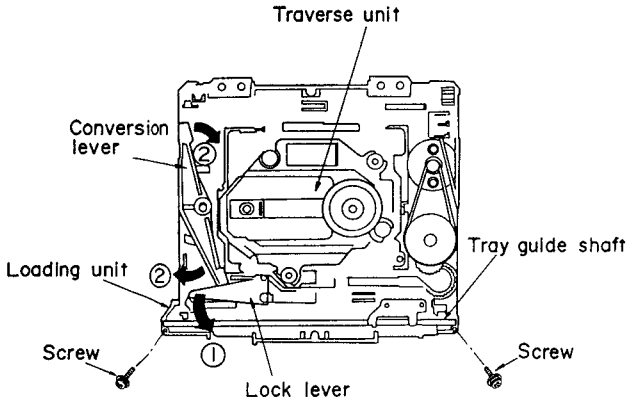


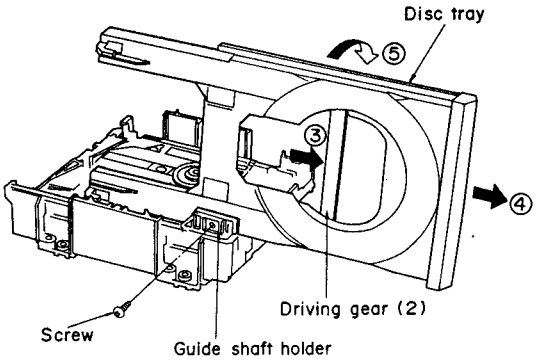
(The illustration indicates the DECK 2.)



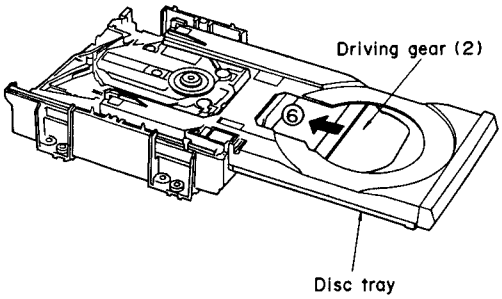
1. Attach the open spring to the cassette holder.
2. Replace the screw and then assemble the front panel match the damper angle.
3. Replace the screw and then assemble damper angle and holder support match the cassette holder.
4. Attach the open spring to rib of damper angle.

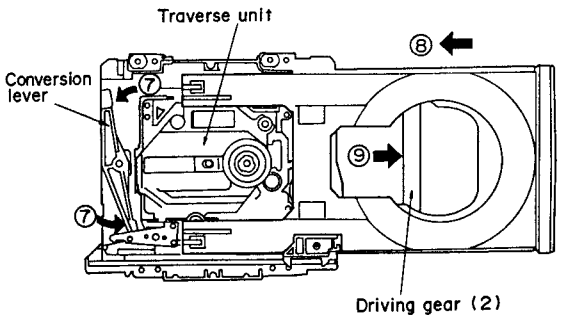
■ Installation of the disc tray





1. Move the lock lever in the direction of arrow ①, and then move the conversion lever in the direction of arrow ②.
   (The traverse unit will move upward.)
2. Use the two screws to mount the tray guide shaft to the loading unit.
3. Use the screw to mount the disc tray to the guide shaft holder.
4. Move the driving gear (2) fully in the direction of arrow ③.
5. Move the disc tray fully in the direction of arrow ④.
6. Tilt the disc tray downward in the direction of arrow ⑤.





7. Move the driving gear (2) fully in the direction of arrow ⑥.
8. While continuing to support the disc tray with your hand, slide the driving gear (2) as far as it will go in the direction of arrow ⑥. (Although it will only slide a small amount, this will allow the loading gear to mesh together with the gear of the disc tray.)
9. Move the conversion lever in the direction of arrow ⑦.
   (The traverse unit will move downward.)
10. Move the disc tray fully in the direction of arrow ⑧. (When doing this, confirm that the driving gear (2) slides in the direction of arrow ⑨.)

■ MEASUREMENTS AND ADJUSTMENTS

• CD SECTION

Warning: This product uses a laser diode. Refer to caution statements on page 3.

Caution: During adjustment, never connect CH-2 probe's GND to any place for it may short V-Ref. line. (Connect CH-1 probe's GND to specified TP. described in each section.)

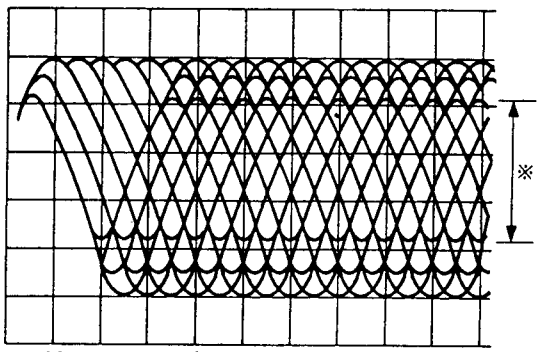
Measuring Instruments and Special Tools

- Test discs
  1. Playability test disc (SZZP1054C)
  2. Uneven test disc (SZZP1056C)
- Musical program disc (ordinary)
- Extension cable kit (RFKZ0009)
- Dual-beam oscilloscope with bandwidth of 30MHz or better (with EXT. trigger and 1: 1 probe).
- Allen wrench (M2.0) (SZZP1101C)
- Lock paint (RZZ0L01)

(1) MECHANICAL ADJUSTMENT

- When the traverse deck is replaced, making adjustments is not necessary. (The traverse deck ass'y is already adjusted.)
- Make adjustments to improve playability if the traverse deck has not been replaced.

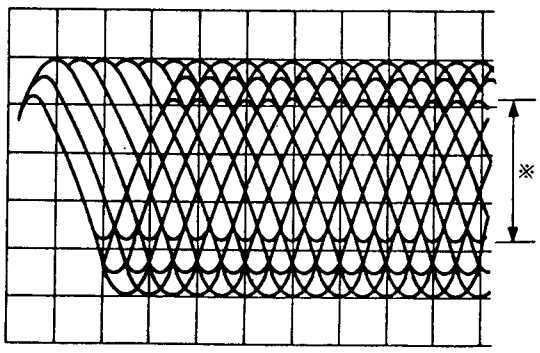
1. Connect the oscilloscope's CH. 1 probe across TP702 (RF) (+) and TP703 (V-Ref.) (−) on the servo P.C.B.
   Oscilloscope setting: VOLT.....200mV
   SWEEP .....0.5μs.
   Input coupling.AC
2. Switch the player power **ON**, and play track **19** on the test disc (SZZP1056C).
   (Playing any other track will prevent the HEX screws from being accessed.)
3. Leave the player in play mode and place the traverse deck as shown under Ref. No. 38 on page 21.
4. Alternately adjust the two HEX screws with the 2.0mm allen wrench (SZZP1101C) until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched.
   (Refer to Fig. 2 on page 25)
5. After completing the adjustment, lock the HEX screws with lock paint (RZZ0L01).



※ Most stretched eye pattern.

(2) BEST EYE (PD BALANCE) ADJUSTMENT

1. Connect the oscilloscope's CH. 1 probe across TP702 (RF) (+) and TP703 (V-Ref.) (−) on the servo P.C.B.
   Oscilloscope setting: VOLT.....200mV
   SWEEP .....0.5μs.
   Input coupling.AC
2. Switch the player power **ON**, and play the 1kHz (track 1) on the test disc (SZZP1054C).
3. Adjust **VR701** until the vertical fluctuation of RF signal is minimized and the eye pattern is most stretched. (Refer to Fig. 1 on page 25)



※ Most stretched eye pattern.

(3) CHECK OF PLAY OPERATION AFTER ADJUSTMENT

- **Checking Skip Search**

1. Play an ordinary musical program disc.
2. Press the skip button to check for normal skip search operation (in both the forward and reverse directions).

- **Checking Manual Search**

1. Play an ordinary musical program disc.
2. Press the manual search button to check for smooth manual search operations at either low or high speed (in both the forward and reverse directions).

- **Checking Playability**

1. Play the 0.7mm black dot and the 0.7mm wedge on the test disc (SZZP1054C) and verify that no sound skip or noise occurs.
2. Play the middle tracks of the uneven test disc (SZZP1056C) and verify that no sound skip or noise occurs.

• Adjustment points

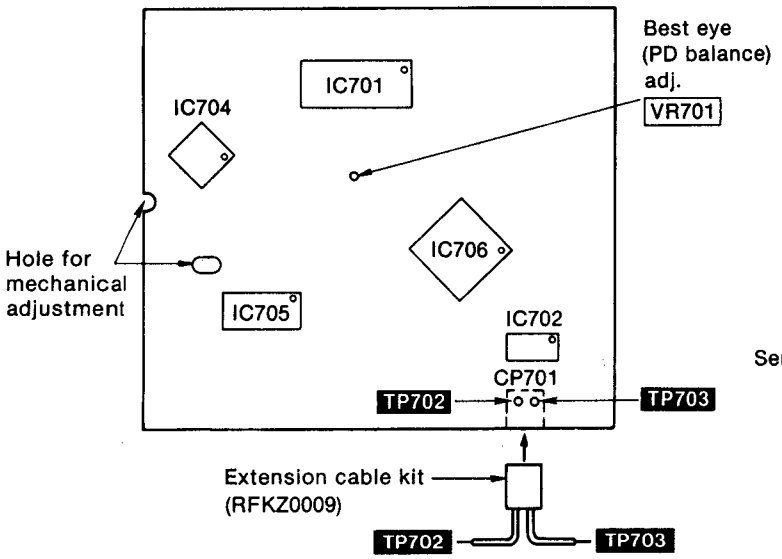


Fig. 1

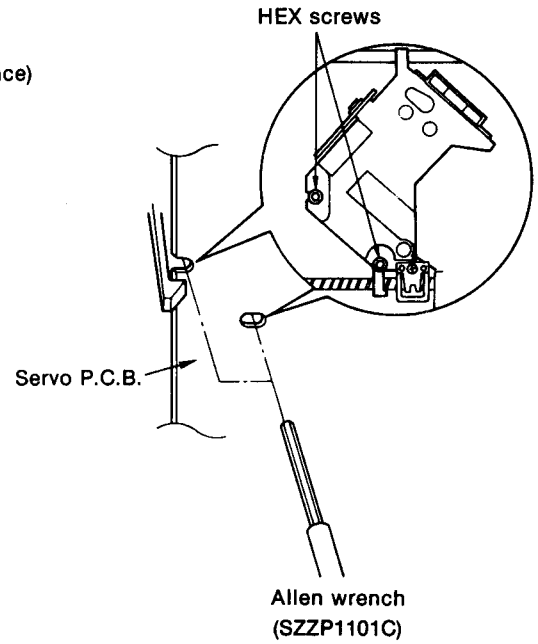
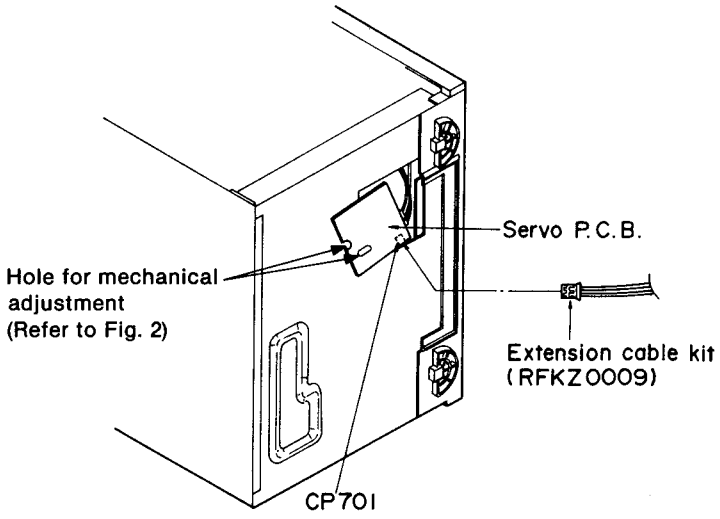


Fig. 2

• How to install the extension cable kit (RFKZ0009)

※ It may be difficult to insert the (2 pin) extension cable while the tray is closed, therefore open the disc tray slightly and insert the (2 pin) extension cable.



• AM/FM TUNER SECTION

Note: For Z2 (AM (MW//LW)) and Z1 (AM (MW/LW) ANT and OSC coil), they are supplied as adjusted parts. So, do not turn the cores of the parts.

Mesuring Instruments

- FM signal generator (FM-SG)
- Distortion analyzer
- Digital frequency counter
- Capacitor (50V 1~10μF)
- Resistor (330kΩ)

Measurement Conditions

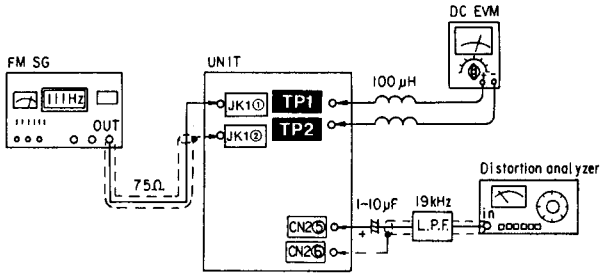
- Volume control ..... Maximum
- L.P.F. (19kHz)
- DC electronic voltmeter (DC EVM)
- Equalizer control ..... Center
- Balance control ..... Center

FM MONO DISTORTION ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Set the unit to "**FM**" mode.
3. Set the radio frequency display and signal generator to **100.10MHz**.
4. Adjust the core of **T1** so that the voltage measured in signal mode is **0mV (0±30mV)** in 300mV range.
5. Adjust **T2** so that the distortion factor of L-CH is minimized.
6. Repeat steps 4 and 5.
7. Make sure that the distortion factors of L-CH and R-CH are nearly the same and minimum.

Note: The adjusting screwdriver used should be made of resin.

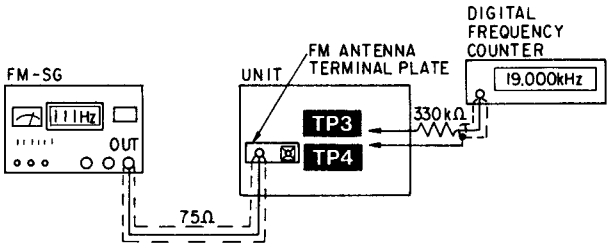
FM SIGNAL GENERATOR CONDITION
Modulation 100%
Modulation frequency.....1kHz
Output level.....66dB



FM MPX VCO ADJUSTMENT

1. Test equipment connection is shown in figure.
2. Place unit into "FM STEREO" position.
3. Place the radio dial and signal generator setting to 98MHz.
4. Adjust **VR51** for **19kHz±30Hz** on frequency counter reading.
5. Tune a stereo broadcast and confirm the frequency stays at 19kHz.

AM SIGNAL GENERATOR CONDITION
Modulation 30%
Modulation frequency.....400Hz
Output level.....66dB



• CASSETTE DECK SECTION

Mesuring Instruments

- AC electronic voltmeter (AC EVM)
- Oscilloscope
- Digital frequency counter
- AF oscillator
- Resistor (1kΩ, 1MΩ)

Measurement conditions

- Make sure heads are clean
- Make sure capstan and pressure roller are clean
- Reverse-mode selector switch; ⇄
- Edit-recording tape selector switch; NORMAL
- Dolby noise-reduction switch; OFF

Test Tapes

- Head azimuth adjustment (8kHz, −20dB): QZZCFM
- Tape speed adjustment (3kHz, −10dB): QZZCWAT
- Normal reference blank tape: QZZCRA
- CrO_2 reference blank tape: QZZCRX

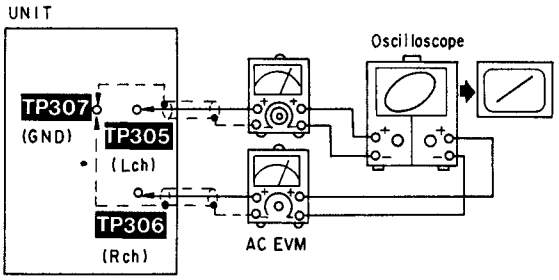
HEAD AZIMUTH ADJUSTMENT (DECK 1, 2)

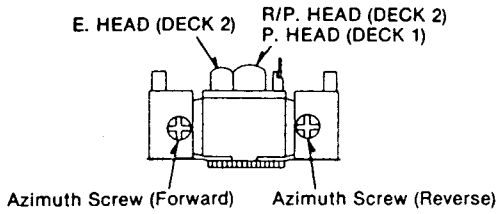
1. Playback the azimuth adjustment portion (8kHz, −20dB) of the test tape (QZZCFM). Vary the azimuth adjusting screw until the outputs of the L-CH and R-CH are maximized and the lissajous waveform, as illustrated, approaches 0 degress.

Note:

If L-CH and R-CH are not maximized at the same point, adjust to the point where the levels of each channel are maximized and equal.

2. Perform the same adjustment in the play mode.
3. After the adjustment, apply screwlock to the azimuth adjusting screw.



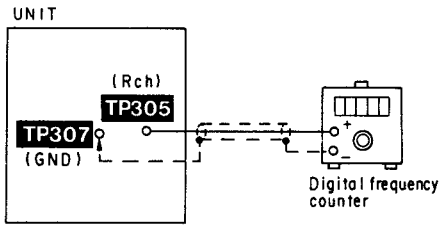


TAPE SPEED ADJUSTMENT (DECK 1, 2)

1. Test equipment connection is shown in figure.
2. Set the unit to "**TAPE**" position.
3. Playback the middle part of the test tape (QZZCWAT).
4. Adjust **VR451** (DECK 1) and **VR453** (DECK 2) so that the output is within the standard value.
5. Set the unit to "**HIGH**" position of editing speed button.
6. Adjust **VR454** (DECK 2) so that the output is within the standard value.

Note:

1. The Normal speed adjustment must be done before the High speed adjustment.
2. When adjusting the high speed, short circuit between TP451 and TP452.

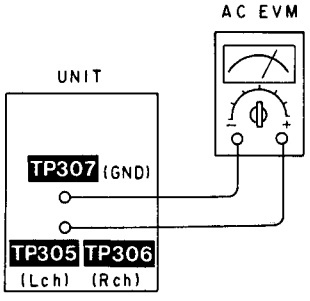


DECK 1 Standard value: 2995~3025Hz (Normal)
DECK 2 Standard value: 2995~3025Hz (Normal)

Standard value: 5100~5700Hz (High)

PLAYBACK GAIN ADJUSTMENT (DECK 1, 2)

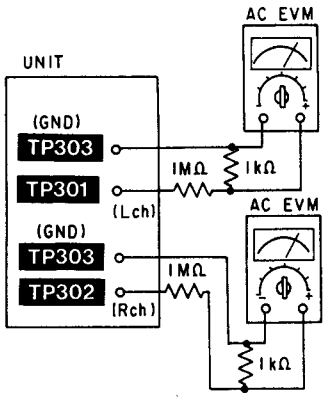
1. Test equipment connection is shown in figure.
2. Playback test tape (QZZCFM: 315Hz, −10dB).
3. Adjust **VR301, 302** (DECK 1) and **VR303, 304** (DECK 2) to read **390±10mV** on the AC Electronic Voltmeter. (AC EVM)



RECORDING BIAS ADJUSTMENT (DECK 2)

1. Test equipment connection is shown in figure.
2. Insert the normal tape (QZZCRA).
3. Place cassette deck into **REC** mode.
4. Adjust **VR305** (Lch) and **VR306** (Rch) so that the output is within the standard value.
5. Insert the CrO_2 tape.
6. Repeat steps 3, 4.

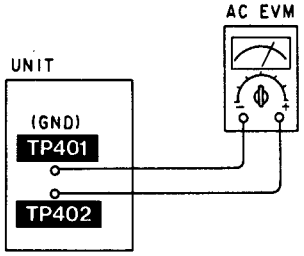
DECK 2 Standard value (Normal); 9~17mV
DECK 2 Standard value (CrO_2): 12~24mV



ERASE CURRENT CHECK (DECK 2)

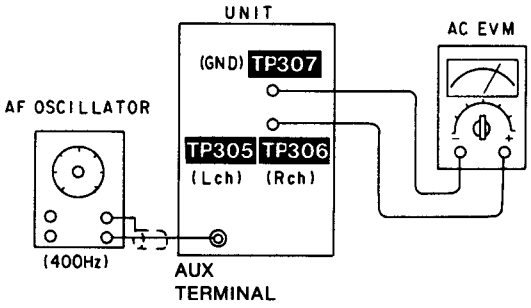
1. Test equipment connection is shown in figure.
2. Insert the normal tape (QZZCRA).
3. Place cassette deck into **REC** mode.
4. Make sure that the output is within the standard value.
5. Insert the CrO_2 tape (QZZCRX).
6. Repeat steps 3, 4.

DECK 2 Standard value (Normal): more than 50mV
DECK 2 Standard value (CrO_2): more than 70mV

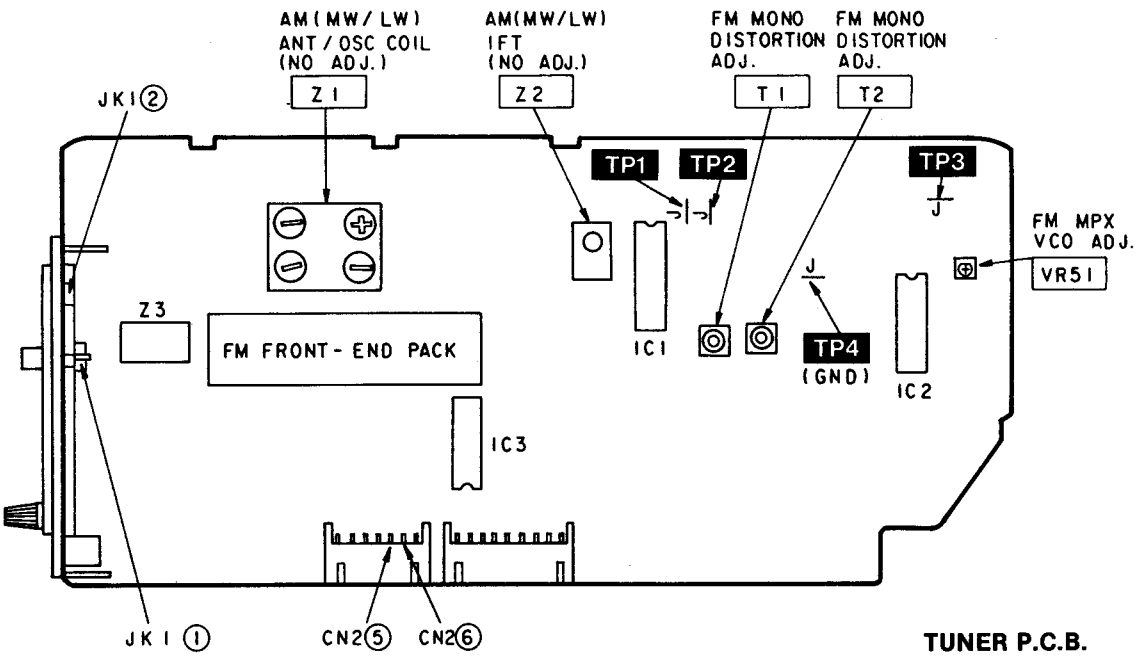


RECORDING CURRENT ADJUSTMENT (DECK 2)

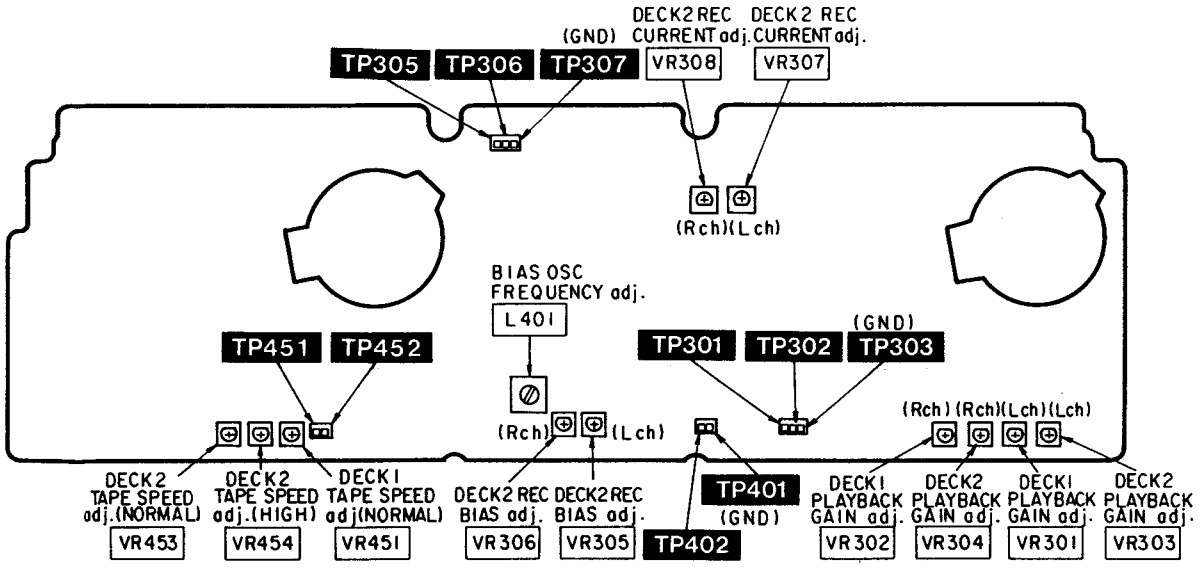
1. Test equipment connection is shown in figure.
2. Place the unit in the "**AUX**" position and the cassette deck in the **STOP** mode.
3. Place the cassette deck into **REC** mode.
4. Feed an AF Oscillator signal (**400Hz**) into the **AUX** terminal and adjust the input level to read **390±10mV** on the AC Electronic Voltmeter (AC EVM).
5. Place the cassette deck into the **REC** mode (QZZCRA) and the **PLAY** mode.
6. Adjust **VR307** (Lch) and **VR308** (Rch) to read **390±10mV** on the AC Electronic Voltmeter. (AC EVM)



• **Test points and adjustment points**



TUNER P.C.B.



TAPE DECK P.C.B.

■ TERMINAL FUNCTION OF IC

• IC403 (TC9315F-004): Mechanism control

Pin No.	Mark	I/O Division	Function
1	OUT-17	O	(Not used, open)
2	OUT-16		
3	BUSY	O	Muting control signal from deck circuit
4	OUT-19	O	(Not used, open)
5	OUT-1A		
6 ∫ 9	I/O-14 ∫ I/O-11	I/O	Input/output terminal
10	HALL IC	I	Reel rotation pulse signal of deck 1
11	CUE • REV SELECT	I	(Not used, connected to GND)
12	IN 18		
13	IN 17		
14	1 WAY SELECT		
15	FAST	I	Operation key switches signal of deck 1
16	◁		
17	▷		
18	HALF	I	Cassette-half det. switch of deck 1 (ON: "L", OFF: "H")
19	MODE	I	Mechanism mode switch of deck 1 (ON: "L", OFF: "H")
20	CL	I	(Not used)
21	OSC		
22	TEST	—	Test terminal
23	NC	—	(Not connected)
24	IN 01	I	(Not used, connected to GND)
25	EDIT CONT	I	Operation key switches signal
26	REV MODE		
27	MODE	I	Mechanism mode switch of deck 2 (ON: "L", OFF: "H")
28	HALF	I	Cassette half det. switch of deck 2 (ON: "L", OFF: "H")
29	REC INH. R	I	Reverse rec. inh. switch of deck 2 (ON: "L", OFF: "H")
30	REC INH. F	I	Forward rec. inh. switch of deck 2 (ON: "L", OFF: "H")

Pin No.	Mark	I/O Division	Function
31	▷	I	Operation key switch signal of deck 2
32	◁		
33	FAST		
34	○/□□		
35	CUE • REV SELECT	I	(Not used, connected to GND)
36	HALL IC	I	Reel rotation pulse signal of deck 2
37 ∫ 40	I/O-21 ∫ I/O-24	I/O	Input/output terminal
41	REC ENABLE	O	Rec enable signal
42	REC L	O	Rec mute signal
43	BUSY	O	Muting control signal from deck circuit
44	EDIT	O	Mode select control signal
45	○	O	Rec control signal
46	◁ IND	O	LED drive signal of deck 2
47	▷ IND		
48	CUE • REV	O	Cue/rev control signal
49	SOL	O	Solenoid drive signal of deck 2
50	MOTOR	O	Mechanism motor ON/OFF select signal of deck 2 (ON: "H", OFF: "L")
51	DMT	O	Muting control signal
52	AMP2H	O	Deck 1/2 select signal
53	VDD	I	Power supply terminal
54	GND	—	GND terminal
55	X2H	O	Tape edit signal (Normal: "H", X2 edit: "L")
56	MOTOR	O	Mechanism motor ON/OFF select signal of deck 1 (ON: "H", OFF: "L")
57	SOL	O	Solenoid drive signal of deck 1
58	CUE • REV	O	Cue/rev control signal
59	▷ IND	O	LED drive signal of deck 1
60	◁ IND		

• IC203 (M50942-288SP): FL & key control

Pin No.	Mark	I/O Division	Function
1	VREF	I	Referenc'e voltage terminal for A/D converter
2	F1	I	Spectrum analyzer signal
3	F2		
4	F3		
5	F4		
6	F5		
7	F6		
8	F7		
9	PWR OUT	I	Power ON/OFF detector terminal
10	B.D.I	I	External control data signal
11	B.C.I	I	External control clock signal
12	B.D.O	O	External control data signal
13	B.C.O	O	External control clock signal
14	MUTE	O	Muting signal (Not used, connected resister)
15	DATA	O	Serial data signal
16	CLK	O	Clock signal
17	A2	—	GND terminal
18	SL12	O	Segment signal for FL display.
19	SL13		
20	D	O	Digit signal for FL display
21	C		
22	B		
23	A		

Pin No.	Mark	I/O Division	Function
24	$\overline{\text{HOLD}}$	I	Power down mode detector terminal
25	PWR OUT	O	Power ON/OFF detector signal
26	CNVSS	—	GND terminal
27	$\overline{\text{RESET}}$	I	Reset signal
28	X IN	I	Crystal osc terminal (4MHz)
29	X OUT	O	
30	XC IN	—	Not used, connected to GND
31	XC OUT	—	Not used, open
32	VSS	—	GND terminal
33	ϕ	—	Non connection
34 ∫ 37	K0 ∫ K3	I	Key scan signal
38	VP	I	Power supply terminal for FL drive
39 ∫ 51	SR1 ∫ SR13	O	Segment signal for FL display
52 ∫ 62	SL1 ∫ SL11		
63	AVCC	I	Power supply terminal
64	VCC	I	Power supply terminal

• IC201 (LC6568H-4616): Microcomputer

Pin No.	Mark	I/O Division	Function
1	PP0	O	Segment signal of FL
2 ~ 5	PA 0 ~ PA 3	I	Key return signal
6	PB0		
7	PB1		
8	PB2/ REMOTE	I	Remote control signal input
9	PB3/STDBY	I	Power standby input terminal
10	PC0/$\overline{\text{CDSY}}$	I	Synchro rec control signal from CD unit
11	PC1/ $\overline{\text{STEREO}}$	I	Stereo signal det. terminal
12	PC2/SD	I	Signal received det. terminal
13	PC3/$\overline{\text{REC}}$	I	Rec control signal
14	PD0/ R-PAUSE	O	Operation key switch signal of deck 2
15	PD1/ D2 FAST		
16	PD2/D2 REV		
17	PD3/ D2 FWD		
18	PE0/$\overline{\text{RLY}}$	O	Relay drive
19	PE1/TUMT	O	Muting control signal for tuner circuit
20	PE2/$\overline{\text{CD}}$	O	Synchro edit control signal to CD unit
21	PE3/AMT	O	Muting control signal for amp. circuit
22	TEST	—	Test terminal
23	VSS	—	GND terminal
24	OSC1	I	Clock terminal (4 MHz)
25	OSC2	O	
26	$\overline{\text{RES}}$	I	Reset signal
27	PF0/DATA	O	Serial data signal
28	PF1/CLK	O	Serial clock signal

Pin No.	Mark	I/O Division	Function
29	PF2/CE	O	Chip enable terminal
30	PH0/ $\overline{\text{POWER}}$	I	Power on/off det. terminal
31	PG0/MONO	O	Forcible monaural control signal
32	PG1/STB	O	Level shift control terminal
33	PG2/D1/D2	O	LED drive signal
34	PG3/$\overline{\text{TAPE}}$	O	Mode control signal for deck circuit
35	PI0/DOWN	O	LED drive signal
36	PI1/UP		
37	PI2/VOL U	O	Volume motor drive signal
38	PI3/VOL D		
39	PJ0/CD RST	O	CD reset signal
40	PJ1/ D1 FAST	O	Operation key switches signal of deck 1
41	PJ2/D1 REV		
42	PJ3/ D1 FWD		
43	VP	I	Power supply terminal
44 ~ 47	PK 0 ~ PK 3	O	Segment signal of FL
48 ~ 51	PL 0 ~ PL 3		
52 ~ 55	PM 0 ~ PM 3		
56	VDD	I	Power supply terminal
57 ~ 60	PN 0 ~ PN 3	O	Segment signal of FL
61 ~ 64	P00 ~ P03		

• IC101 (MB88724B-140): System control & FL drive

Pin No.	Mark	I/O Division	Function
1 ⟆ 11	C0 ⟆ C10	O	Grid signal of FL
12 ⟆ 15	C11 ⟆ C14	O	(Not used, open)
16	C15/ $\overline{\text{CD PWR}}$	O	Power supply control to CD circuit
17	00/$\overline{\text{RECV}}$	O	Data receipt command signal
18	01/$\overline{\text{SEND}}$	O	Data transmission command signal
19	02/ACK	O	Data discrimination signal
20	03/CLK	O	Data lock signal
21 ⟆ 24	10/D0 ⟆ 13/D3	O	Key scan signal
25	40/REMOTE	I	Remote control signal input
26	41	I	Power supply terminal
27	42/CEL $\overline{\text{CD}}$	I	Synchro edit control signal
28	43	—	(Not used)
29	50/CD SY	O	Synchro rec control signal
30	51/ REC ENA	I	Rec enable signal

Pin No.	Mark	I/O Division	Function
31	$\overline{\text{RES}}$	I	Reset signal
32	VSS	—	GND terminal
33	E	I	Clock signal input (4.2336MHz)
34	EX		
35	CE	I	Power supply terminal
36	WD	—	(Not used, connected to GND)
37	XL	—	(Not used, open)
38	EXL	—	(Not used, connected to GND)
39	60	I	Power supply terminal
40 ⟆ 44	61~63 • 70, 71	I	Key return signal
45	72	I	Power supply terminal
46	73		
47	V_{PP}		
48 ⟆ 63	S15 ⟆ S0	O	Segment signal of FL
64	VDD	I	Power supply terminal

• IC151 (MN1554PKL1): System control

Pin No.	Mark	I/O Division	Function
1	MUTE	O	Muting control signal
2	PLUNG	—	(Not used, open)
3	SYNC		
4	SIRQ	I	(Not used, connected to power supply)
5	BLKCK	I	Sub code block clock signal (f BLKCK=75Hz)
6	SQCK	O	Sub-code Q resistor clock
7	SB0	I	(Not used, open)
8	SUB Q	I	Sub code (Q data) input
9	RESET	I	Reset signal input
10	CLOSE SW	I	Disc holder "close" detection
11	OPEN SW	I	Disc holder "open" detection
12	REST SW	I	Rest position detection signal
13	NC	—	(Not used, connected to GND)
14	CLOSE	O	Loading motor "close" command
15	OPEN	O	Loading motor "open" command
16 ∫ 24	NC	—	(Not connected)
25	+5V	I	Power supply terminal
26 ∫ 28	NC	—	(Not connected)
29	MODE	—	(Not used, connected to GND)
30	NC		
31	FUTA SW	I	(Not used, connected to power supply)
32	MODE	—	(Not used, connected to GND)

Pin No.	Mark	I/O Division	Function
33	STAT	I	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
34	$\overline{\text{TLOCK}}$	I	Optical servo condition (tracking) output
35	$\overline{\text{FLOCK}}$	I	Optical servo condition (focus) output
36	SENSE	I	Sense signal
37	RECV	I	Data receipt command signal
38	SEND	I	Data transmission command signal
39	ACK	I	Data discrimination signal
40	CLK	I	Data lock signal
41 ∫ 44	DATA 0 ∫ DATA 3	I	Key scan signal
45 ∫ 52	NC	—	(Not connected)
53	OSC 2	I	Clock input terminal (4.2336MHz)
54	OSC 1		
55	X	—	(Not used, connected to GND)
56	X0	—	(Not used, open)
57	GND	—	GND terminal
58	DMUTE	O	Muting output ("H": MUTE)
59	MDATA	O	Command data signal
60	MCLK	O	Command clock signal
61	MLD	O	Command load signal ("L": LOAD)
62	D OUT	—	(Not used, open)
63	EMPH		
64	SERVO RST	I	Reset signal input

• IC701 (AN8800SCE2): Servo amp

Pin No.	Mark	I/O Division	Function
1	LDG	I	APC loop gain select
2	LDP	I	APC monitor PD polarity select
3	LD	O	Laser power auto control output
4	LPD	I	LD power monitor PD signal
5	GND	—	GND terminal
6	LDON	I	LD APC ON/OFF ("H": ON, "L": OFF)
7	AMP I	I	RF signal (X30 amp)
8	AMP O	O	
9	RF IN	I	RF AGC signal input
10	RF EQ	—	GND terminal
11	C. AGC	I	AGC detection capacitor input
12	ARF	O	RF signal output
13	C. SBDO	I	Dropout detection capacitor input
14	RF DET	O	RF detection signal ("L": detecting)
15	BDO	O	Dropout detection output
16	V_{CC}	I	Power supply terminal
17	SDO	O	Dropout detection pulse output
18	VAD+	O	Power supply terminal for A/D converter (+)
19	VREF	O	Reference voltage output
20	VAD−	O	Power supply terminal for A/D converter (−)
21	OFTR	O	Off track detection ("H": det.)

Pin No.	Mark	I/O Division	Function
22	PLAY	I	Play signal ("H": ON, "L": OFF)
23	WVEL	I	Double velocity ("H": double, "L": single)
24	TES	I	Tracking error shunt ("H": shunt, "L": output)
25	PTO	O	Potentio amp output
26	PTI	I	Potentio amp input
27	PBO	O	Potentio buffer output
28	POT	I	Potentio buffer input
29	CROSS	O	Tracking error zero cross output
30	TE	O	Tracking error signal
31	TE BAL	I	Oscillation det. signal
32	TBAL	I	Tracking balance adj. input
33	VDET	O	Oscillation det. signal ("H": det.)
34	FE	O	Focusing error signal
35	FBL 2	I	Focusing balance 2
36	FBL 1	I	Focusing balance 1
37	V_{CC}	I	Power supply terminal
38	GND	—	GND terminal
39	PDBD	I	Photo detector Bch input with delay
40	PDA	I	Photo detector Ach input without delay
41	PDB	I	Photo detector Ach input with delay
42	PDAD	I	Photo detector Bch input without delay

• IC703 (AN8377N): Traverse motor drive

Pin No.	Mark	I/O Division	Function
1	P V_{CC}	I	Drive power supply
2	V_{CC}	I	Power supply terminal
3	TB	O	External transistor base driving output
4	VMON	O	Voltage output
5	TVD1	I	Traverse error signal input
6	TD1	I	Tracking error signal input
7	FD1	I	Focus error signal input
8	VREF	I	Reference voltage input

Pin No.	Mark	I/O Division	Function
9	FD+	O	Non-inverting output of focus driver
10	FD−	O	Inverting output of focus driver
11	TD+	O	Non-inverting output of tracking driver
12	TD−	O	Inverting output of tracking driver
13	TVD+	O	Non-inverting output of traverse driver
14	TVD−	O	Inverting output of driver
15	/RST	O	Reset signal output
16	PC	I	PC input (connect to GND)

• IC705 (MN6477T2): Digital filter & D/A converter

Pin No.	Mark	I/O Division	Function
1	LRCK	I	L/R discriminating signal
2	BCLK	I	Serial bit clock input
3	SRDATA	I	Serial data output (MSB first)
4	COT 1	I	Test terminal (Ordinaly: L)
5	COT 2		
6	TEST		
7	V_{DD}	I	Digital power supply terminal
8	X2	O	Clock terminal (f=33.8688MHz)
9	X1	I	
10	V_{SS}	—	Digital GND terminal
11	$AV_{DD.}$ L	I	Analog power supply terminal 1
12	OUT. L	O	Analog signal output 1

Pin No.	Mark	I/O Division	Function
13	$AV_{SS.}$ L	—	Analog GND terminal
14	$AV_{SS.}$ R		
15	OUT. R	O	Analog signal output 2
16	$AV_{DD.}$ R	I	Analog power supply terminal 2
17	/RST	I	Reset signal input (Active: L)
18	PWM	O	PWM output (TP···"H": output, "L": High impedance)
19	TP	I	Test terminal (ordinaly: L)
20	WVEL	I	Double velocity ("H": double, "L": single)
21	DEMPH	I	Digital de-emphasis ON/OFF ("H": ON)
22	CSEL	I	Clock frequency select of CK 192
23	192FS	O	192fs (8.4672MHz) signal output (Not used, open)
24	384/768FS	O	Clock output terminal (184fs=16.9344MHz)

• IC704 (MN6650): Digital servo processor

Pin No.	Mark	I/O Division	Function
1	TES	O	Tracking error shunt signal ("H": shunt)
2	PLAY	O	Play signal ("H": play)
3	/RFDET	I	RF det. signal ("L": det.)
4	DO	I	Dropout signal ("H": dropout)
5	OFT	I	Off track signal ("H": off track)
6	ARF	I	RF signal input
7	WVEL	O	Double velocity status signal ("H": double)
8	PBO	I	Potensio buffer signal (analog input)
9	TE	I	Tracking error signal (analog input)
10	FE	I	Focus error signal (analog input)
11	VR2	I	Reference voltage for A/D (Low)
12	VR1	I	Reference voltage for A/D (High)
13	LDON	O	Laser power control ("H": ON)
14	V_{SS}	—	GND terminal
15	AV_{SS}	—	GND terminal
16	AV_{DD}	I	Power supply terminal
17	V_{DD}	I	Power supply terminal
18	TRV	O	Traverse servo control output
19	TVD	O	Traverse drive signal output
20	FOD	O	Focus drive signal output
21	TRD	O	Tracking drive signal output

Pin No.	Mark	I/O Division	Function
22	KICK	O	Kick pulse output
23	/TEST	I	Test terminal
24	V_{SS}	—	GND terminal
25	CLVS	I	Spindle servo phase synchro signal ("H": CLV, "L": Rough servo)
26	/TRON	O	Tracking servo ON signal ("L": ON)
27	MDATA	I	Command data signal
28	MCLK	I	Command clock signal
29	MLD	I	Command load signal ("L": LOAD)
30	SENSE	O	Sense signal
31	/FLOCK	O	Optical servo condition (focus) output
32	/TLOCK	O	Optical servo condition (tracking) output
33	/RST	I	Reset signal ("L": reset)
34	XI	I	Clock input (f=16.9344MHz)
35 ~ 38	T0 ~ T3	O	Test terminal (Ordinaly: open)
39 ~ 41	T4 ~ T6	I	Test terminal (Ordinaly: L)
42	VDET	I	Oscillation det. signal ("H": det.)
43	TBAL	O	Tracking balance adj. output
44	TRCRS	I	Track cross signal input

• IC706 (MN6626): Digital signal processor

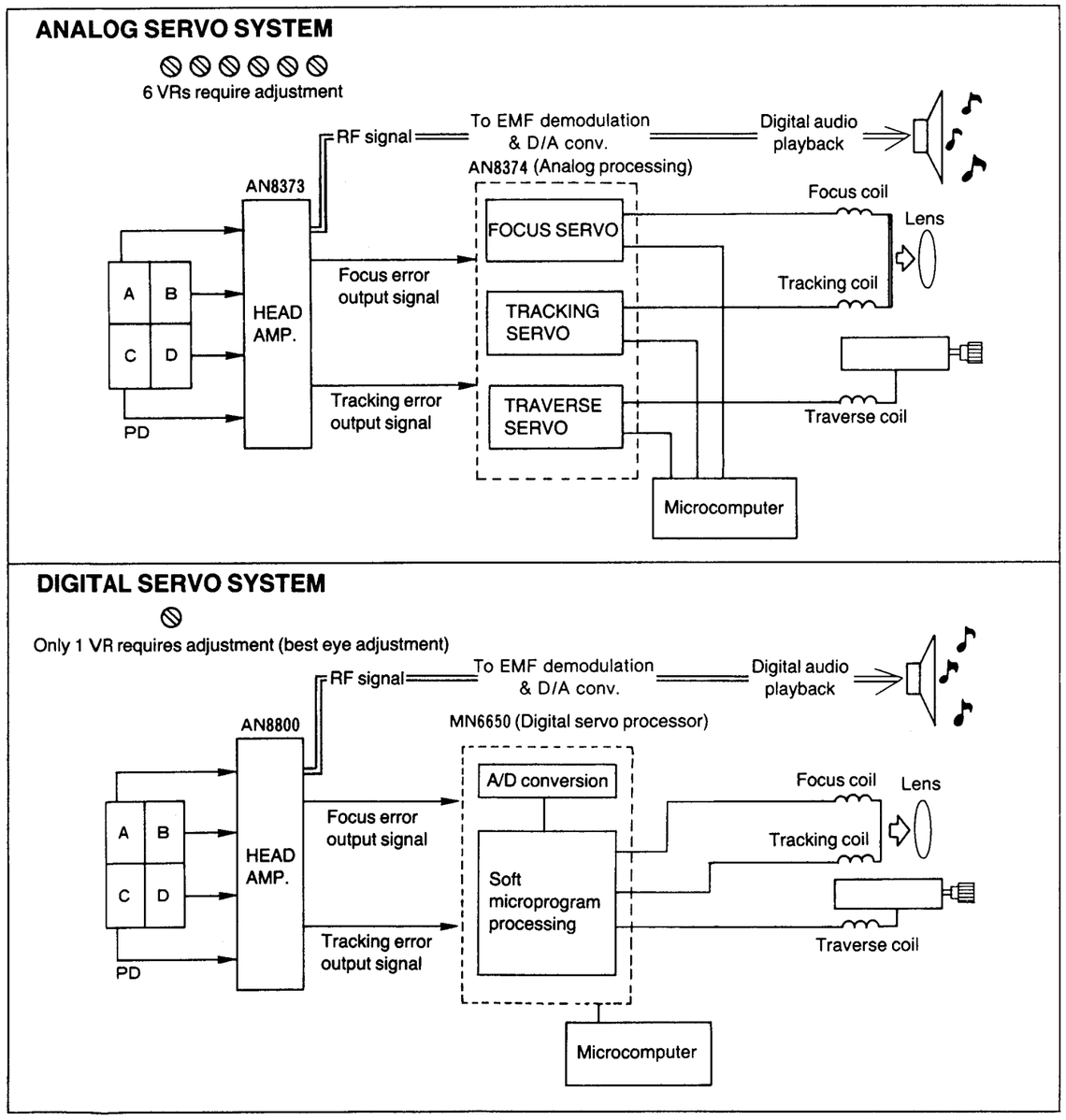
Pin No.	Mark	I/O Division	Function
1	AVSS	—	GND terminal
2	IREF	I	Reference current input
3	ARF	I	RF signal input
4	DRF	I	DSL bias terminal (Not used, open)
5	DSLF	I/O	DSL loop filter terminal
6	PLLF	I/O	PLL loop filter terminal
7	AVDD	I	Power supply terminal
8	RSEL	I	RF signal polarity setting terminal (Not used, connected to VDD)
9 ∫ 16	TBUS7 ∫ TBUS0	O	Test terminal
17	FLAG	O	Flag terminal
18	IPFLAG	O	Interpolation flag terminal
19	FCLK	O	Crystal frame clock (Not used, open)
20	BYTCK	O	Byte clock (Not used, open)
21	WDCK	O	Word clock (Not used, open)
22	$\overline{RST}$	I	Reset terminal
23	TX	O	Digital audio signal
24	LDG	O	Lch deglitch signal (Not used, open)
25	RDG	O	Rch deglitch signal (Not used, open)
26	SRDATA	O	Serial data output (MSB first)
27	SCK	O	Serial bit clock output
28	LRCK	O	L/R discriminating signal
29	XCK	O	Crystal OSC terminal (f=16.9344MHz)
30	PMCK	O	Frequency division clock signal (Not used, open) ($f=\frac{1}{192}\times CK=88.2kHz$)
31	CSEL	I	Test terminal (Connected to GND)
32	PSEL		
33	X1	I	Crystal OSC terminal (f=16.9344MHz)
34	X2	O	
35	VSS	—	GND terminal
36	SUBQ	O	Sub-code Q data
37	SQCK	I	Sub-code Q register clock
38	$\overline{CLDCK}$	O	Sub-code frame clock (f=7.35kHz) (Not used, open)

Pin No.	Mark	I/O Division	Function
39	BLKCK	O	Sub-code block clock (f=75Hz)
40	DEMPH	O	De-emphasis ON signal ("H": ON)
41	MEMP	I	Emphasis signal
42	MLD	I	Command load signal ("L": LOAD)
43	MCLK	I	Command clock signal
44	MDATA	I	Command data signal
45	D MUTE	I	Muting input ("H": MUTE)
46	SMCK	O	System clock (f=4.2336MHz)
47	STAT	O	Status signal (CRC, CUE, CLVS, TTSTOP, FCLV, SQOK)
48	CRC	O	Sub-code CRC check terminal ("H": OK, "L": NG)
49	SUBC	O	Sub-code serial output data (Not used, open)
50	SBCK	I	Sub-code serial output clock (Not used, open)
51	$\overline{TRON}$	I	Tracking servo ON signal ("L": ON)
52	CLVS	O	Turntable servo phase synchro signal ("H": CLV, "L": Rough servo)
53	PC	O	Turntable motor ON signal ("L": ON)
54	ECM	O	Turntable motor drive signal (Forced mode)
55	ECS	O	Turntable motor drive signal (Servo error signal)
56	VDD	I	Power supply terminal
57	$\overline{TEST}$	I	Test terminal (Normal: "H")
58	SSEL	I	"SUBQ" terminal mode select ("H": Q code buffer)
59	MSEL	I	"SMCK" terminal frequency select ("L": SMCK=4.2336MHz)
60	RESY	O	Re-synchronizing signal of frame sync. (Not used, open)
61	DO	I	Drop-out detection signal ("H": Drop-out) (Not used, connected to GND)
62	EFM	O	EFM signal (Not used, open)
63	PCK	O	PLL extract clock (f=4.3218MHz)
64	PDO	O	Phase comparated signal of EFM and PCK (Not used, open)

■ DIGITAL SERVO SYSTEM

The newly-developed digital servo system is adopted in the servo circuit of the unit's CD player instead of the ordinary analog servo system.

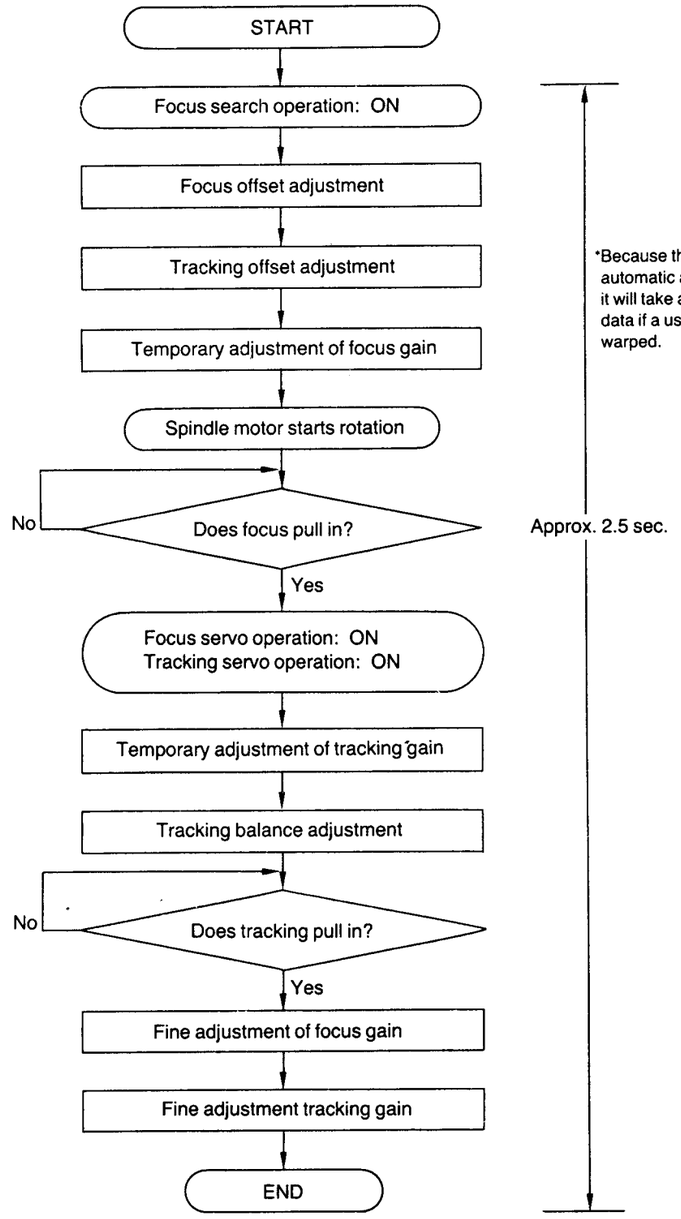
1. The diagrams shown below represent differences between the analog servo and digital servo systems. The HEAD AMP. output signals (i.e., focus error and tracksing error output signals) are analog. These analog signals are converted to the 8-bit digital signals through the MN6650. The MN6650 performs the following adjustments automatically; focus offset, tracking offset, focus gain, tracking gain, and tracking balance adjustments. The outputs from the MN6650 such as the focus coil driving signal, tracking coil driving signal, and traverse motor driving signal are converted to analog signals again and sent to the coils and motor to perform proper servo control for a disc.



2. The servo processor IC MN6650 of the newly-developed digital servo circuit automatically performs the following adjustments which were originally adjusted manually in the conventional analog servo circuit:
(1) Focus offset, (2) Tracking offset, (3) Focus gain, (4) Tracking gain, and (5) Tracking balance. Therefore, you do not have to perform the above-mentioned electrical adjustments. The unit optimizes the servo for each loaded disc.
[You must perform the best eye (PD balance) adjustment manually.]

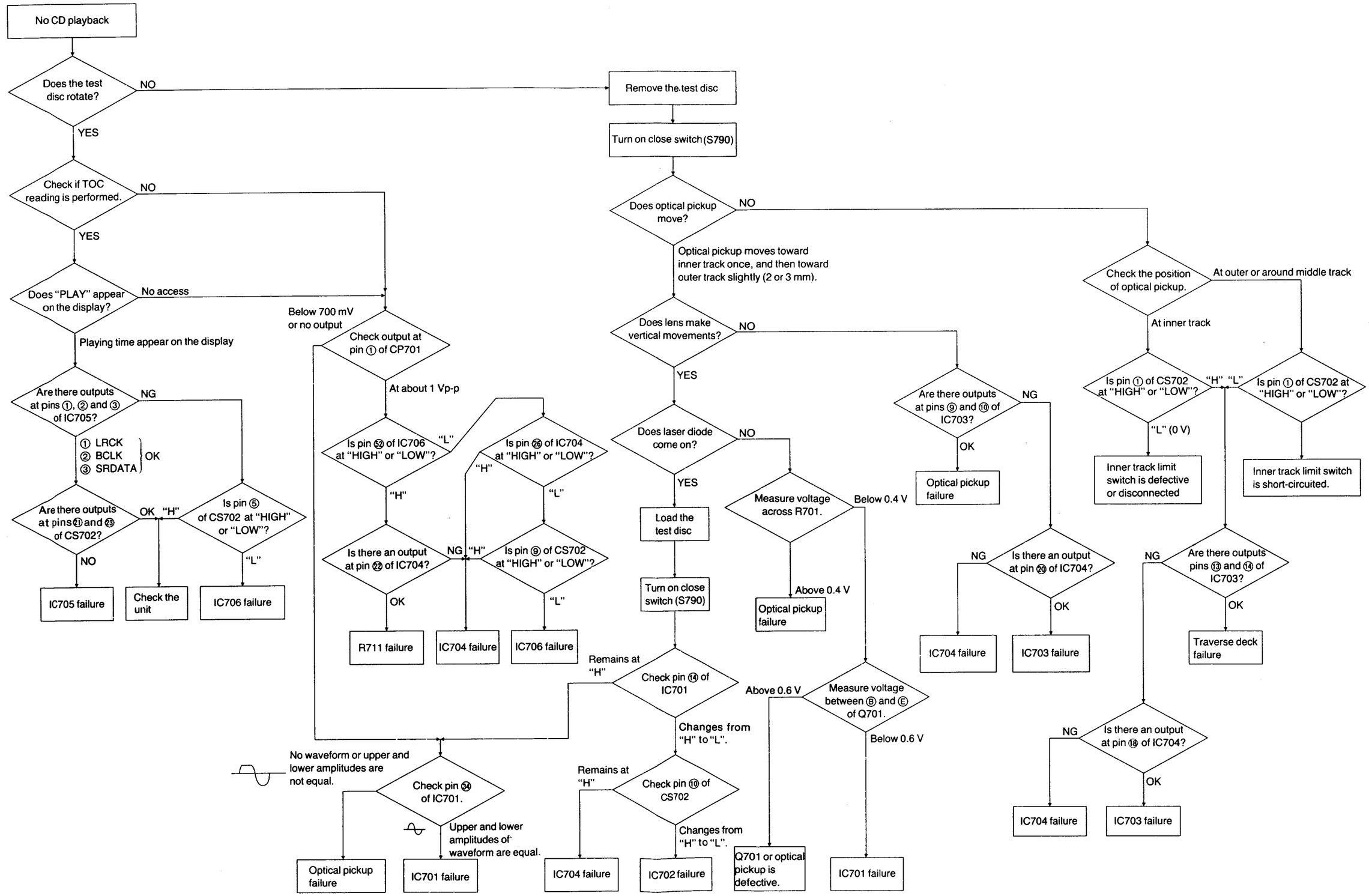
The following flow chart shows the sequence of automatic adjustments.

●Flow chart on automatic adjustment sequence



*Because the microcomputer precisely performs automatic adjustments as shown in the flow chart, it will take approx. 5 seconds to finish reading TOC data if a used disc is eccentric one or its surface is warped.

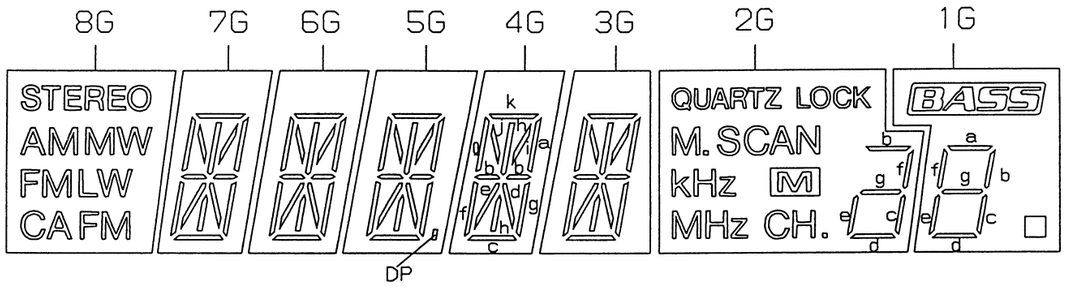
■ TROUBLESHOOTING GUIDE



■ INTERNAL CONNECTION OF FL

• TUNER SECTION

• Grid connection diagram



• Anode connection table

	8G	7G	6G	5G	4G	3G	2G	1G
P1	LW	a	a	a	a	a	–	a
P2	CAFM	b	b	b	b	b	b	b
P3	–	c	c	c	c	c	c	c
P4	–	d	d	d	d	d	d	d
P5	–	e	e	e	e	e	e	e
P6	–	f	f	f	f	f	f	f
P7	STEREO	g	g	g	g	g	g	g
P8	AM	h	h	h	h	h	QUARTZ LOCK	□
P9	MW	i	i	i	i	i	M	–
P10	–	j	j	j	j	j	MHz	–
P11	–	k	k	k	k	k	kHz	BASS
P12	FM	ℓ	ℓ	ℓ	ℓ	ℓ	M. SCAN	–
P13	–	–	–	▯ (DP)	–	–	CH.	–

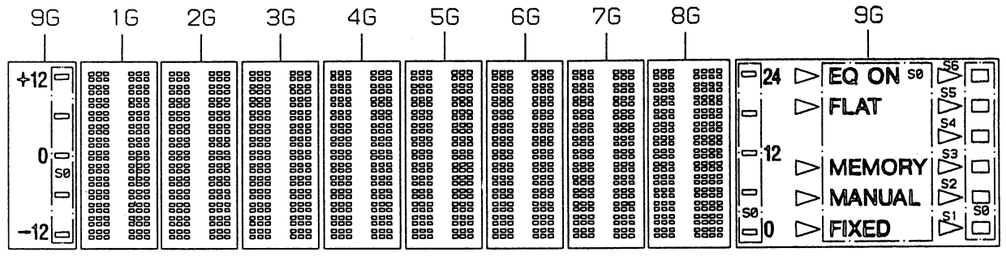
• Pin connection

PIN NO.	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
CONNECTION	NP	F2	NP	NP	P4	P3	P5	P7	P6	P2	P1	P1	P2	P9	P8	P0	P1	P1	NP	NP	NP	NP	NP	NP	2G	1G	8G	7G	6G	5G	4G	3G	NP	NP	F1	NP

1) F1,F2 --- Filament
2) NP ------ No pin
3) 1G~8G --- Grid

• GRAPHIC EQUALIZER SECTION

• Grid connection diagram



B26 B13
B25 B12
B24 B11
B23 B10
B22 B9
B21 B8
B20 B7
B19 B6
B18 B5
B17 B4
B16 B3
B15 B2
B14 B1
(1G~8G)

• Anode connection table

	1G	2G	3G	4G	5G	6G	7G	8G	9G
P 1	B1	B1	B1	B1	B1	B1	B1	B1	(S1)
P 2	B2	B2	B2	B2	B2	B2	B2	B2	(S2)
P 3	B3	B3	B3	B3	B3	B3	B3	B3	(S3)
P 4	B4	B4	B4	B4	B4	B4	B4	B4	(S4)
P 5	B5	B5	B5	B5	B5	B5	B5	B5	(S5)
P 6	B6	B6	B6	B6	B6	B6	B6	B6	(S6)
P 7	B7	B7	B7	B7	B7	B7	B7	B7	(FIXED)
P 8	B8	B8	B8	B8	B8	B8	B8	B8	(MANUAL)
P 9	B9	B9	B9	B9	B9	B9	B9	B9	(MEMORY)
P10	B10	B10	B10	B10	B10	B10	B10	B10	(FLAT)
P11	B11	B11	B11	B11	B11	B11	B11	B11	(EQ ON)
P12	B12	B12	B12	B12	B12	B12	B12	B12	+12 0 -12 24 12 0
P13	B13	B13	B13	B13	B13	B13	B13	B13	–
P14	B14	B14	B14	B14	B14	B14	B14	B14	–
P15	B15	B15	B15	B15	B15	B15	B15	B15	–
P16	B16	B16	B16	B16	B16	B16	B16	B16	–
P17	B17	B17	B17	B17	B17	B17	B17	B17	–
P18	B18	B18	B18	B18	B18	B18	B18	B18	–
P19	B19	B19	B19	B19	B19	B19	B19	B19	–
P20	B20	B20	B20	B20	B20	B20	B20	B20	–
P21	B21	B21	B21	B21	B21	B21	B21	B21	–
P22	B22	B22	B22	B22	B22	B22	B22	B22	–
P23	B23	B23	B23	B23	B23	B23	B23	B23	–
P24	B24	B24	B24	B24	B24	B24	B24	B24	–
P25	B25	B25	B25	B25	B25	B25	B25	B25	–
P26	B26	B26	B26	B26	B26	B26	B26	B26	–
P27	–	–	–	–	–	–	–	–	SØ

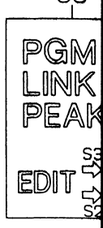
• Pin connection

PIN NO.	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	09	08	07	06	05	04	03	02	01
CONNECTION	F2	F2	NP	NP	1G	2G	3G	4G	5G	6G	7G	8G	9G	NP	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	NP	NP	F1	F1

1) F1,F2 --- Filament
2) NP ------ No pin
3) 1G~9G --- Grid

• COMPACT

• Grid conn



• Anode c

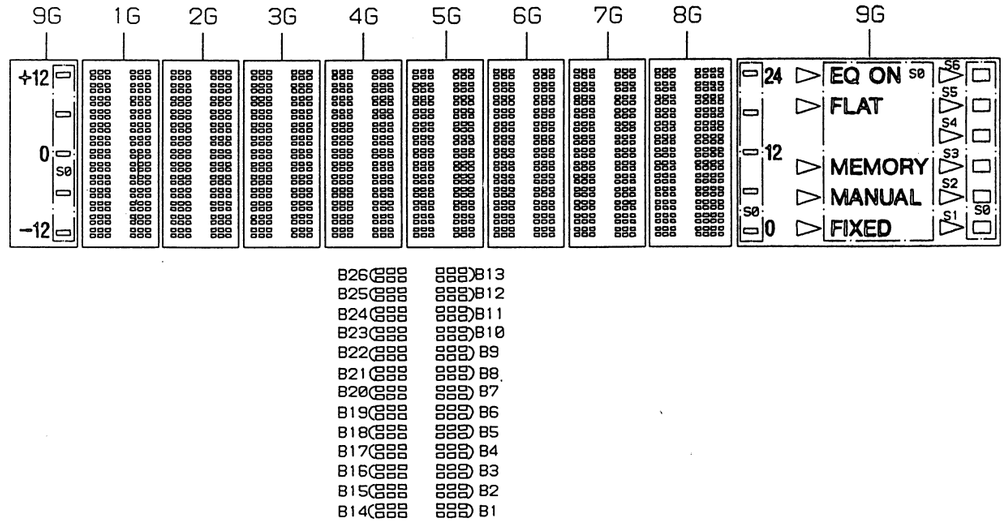
	1
P1	
P2	
P3	
P4	
P5	
P6	
P7	
P8	
P9	
P10	
P11	
P12	
P13	
P14	
P15	
P16	

• Pin con

PI
CONI

• GRAPHIC EQUALIZER SECTION

• Grid connection diagram



• Anode connection table

	1G	2G	3G	4G	5G	6G	7G	8G	9G
P 1	B1	B1	B1	B1	B1	B1	B1	B1	(S1)
P 2	B2	B2	B2	B2	B2	B2	B2	B2	(S2)
P 3	B3	B3	B3	B3	B3	B3	B3	B3	(S3)
P 4	B4	B4	B4	B4	B4	B4	B4	B4	(S4)
P 5	B5	B5	B5	B5	B5	B5	B5	B5	(S5)
P 6	B6	B6	B6	B6	B6	B6	B6	B6	(S6)
P 7	B7	B7	B7	B7	B7	B7	B7	B7	(FIXED)
P 8	B8	B8	B8	B8	B8	B8	B8	B8	(MANUAL)
P 9	B9	B9	B9	B9	B9	B9	B9	B9	(MEMORY)
P10	B10	B10	B10	B10	B10	B10	B10	B10	(FLAT)
P11	B11	B11	B11	B11	B11	B11	B11	B11	(EQ ON)
P12	B12	B12	B12	B12	B12	B12	B12	B12	+12 0 −12
P13	B13	B13	B13	B13	B13	B13	B13	B13	
P14	B14	B14	B14	B14	B14	B14	B14	B14	-
P15	B15	B15	B15	B15	B15	B15	B15	B15	-
P16	B16	B16	B16	B16	B16	B16	B16	B16	-
P17	B17	B17	B17	B17	B17	B17	B17	B17	-
P18	B18	B18	B18	B18	B18	B18	B18	B18	-
P19	B19	B19	B19	B19	B19	B19	B19	B19	-
P20	B20	B20	B20	B20	B20	B20	B20	B20	-
P21	B21	B21	B21	B21	B21	B21	B21	B21	-
P22	B22	B22	B22	B22	B22	B22	B22	B22	-
P23	B23	B23	B23	B23	B23	B23	B23	B23	-
P24	B24	B24	B24	B24	B24	B24	B24	B24	-
P25	B25	B25	B25	B25	B25	B25	B25	B25	-
P26	B26	B26	B26	B26	B26	B26	B26	B26	-
P27	-	-	-	-	-	-	-	-	S0

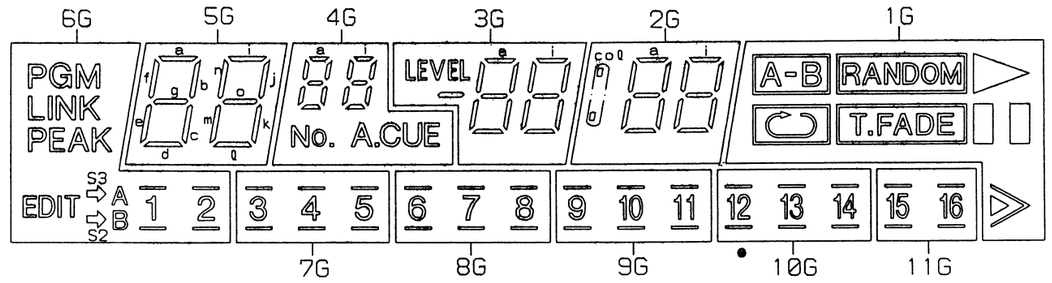
• Pin connection

PIN NO.	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	NP		1G	2G	3G	4G	5G	6G	7G	8G	9G	NP	P26	P25	P24	P23	P22	P21	P20	P19	P18	P17	P16	P15	P14	P13	P12	P11	P10	P9	P8	P7	P6	P5	P4	P3	P2	P1	NP	NP	F1	F1

1) F1,F2 --- Filament
2) NP ------ No pin
3) 1G~9G --- Grid

• COMPACT DISC SECTION

• Grid connection diagram



• Anode connection table

	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	15	12	9	6	3	EDIT A/B	a	a	a	a	▷
P2	(15)	(12)	(9)	(6)	(3)	S2	b	b	b	b	□□
P3	(15)	(12)	(9)	(6)	(3)	S3	f	f	f	f	RANDOM
P4	16	13	10	7	4	1	g	g	g	g	T.FADE
P5	(16)	(13)	(10)	(7)	(4)	(1)	c	c	c	c	↻
P6	(16)	(13)	(10)	(7)	(4)	(1)	e	e	e	e	A-
P7	-	14	11	8	5	2	d	d	d	d	B
P8	-	(14)	(11)	(8)	(5)	(2)	-	No.	-	col	▷
P9	-	(14)	(11)	(8)	(5)	(2)	i	i	i	i	>
P10	-	-	-	-	-	PGM	j	j	j	j	-
P11	-	-	-	-	-	LINK	n	n	n	n	-
P12	-	-	-	-	-	-	o	o	o	o	-
P13	-	-	-	-	-	PEAK	k	k	k	k	-
P14	-	-	-	-	-	-	m	m	m	m	-
P15	-	-	-	-	-	-	ℓ	ℓ	ℓ	ℓ	-
P16	-	-	-	-	-	-	-	A.CUE	LEVEL	-	-

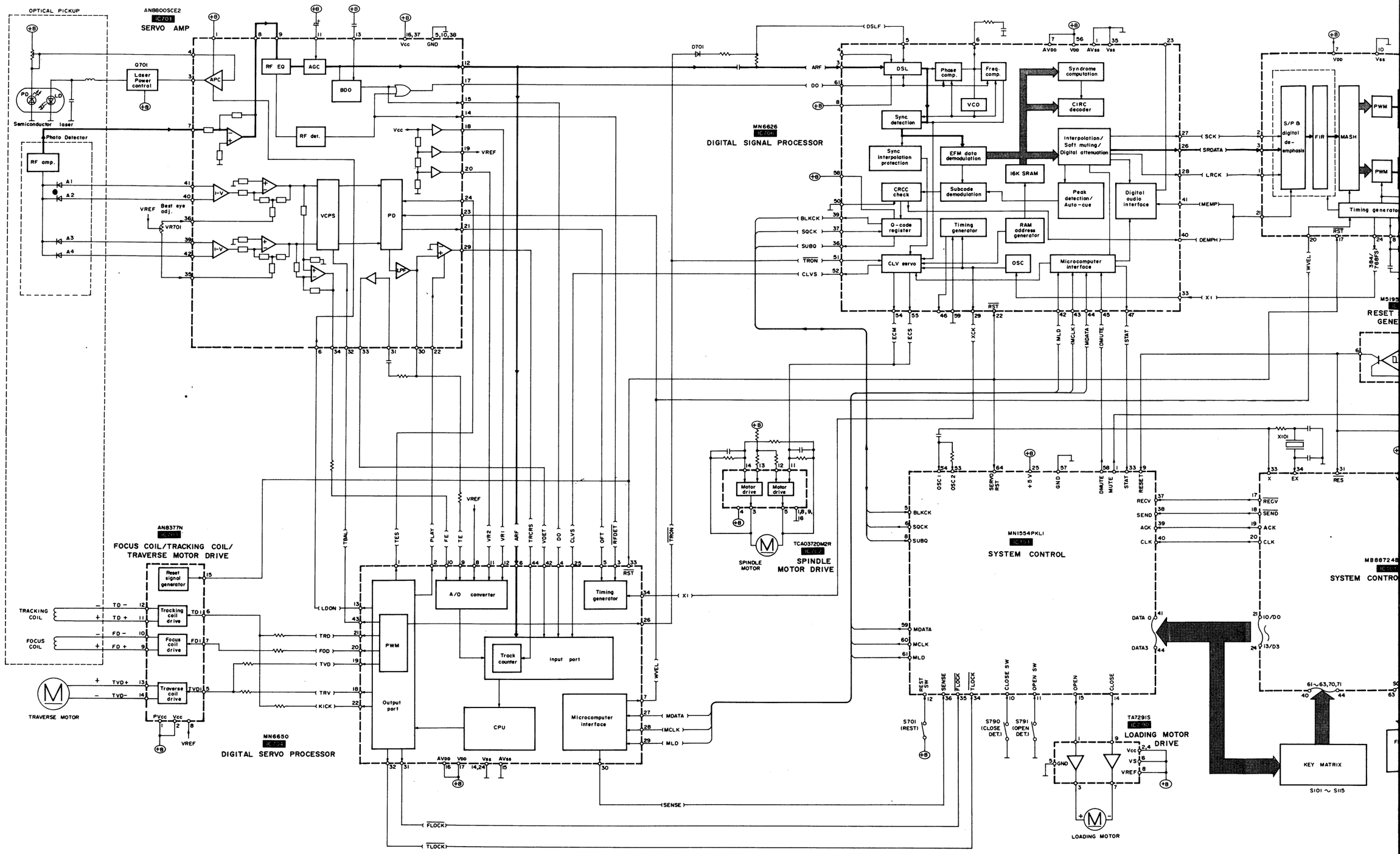
• Pin connection

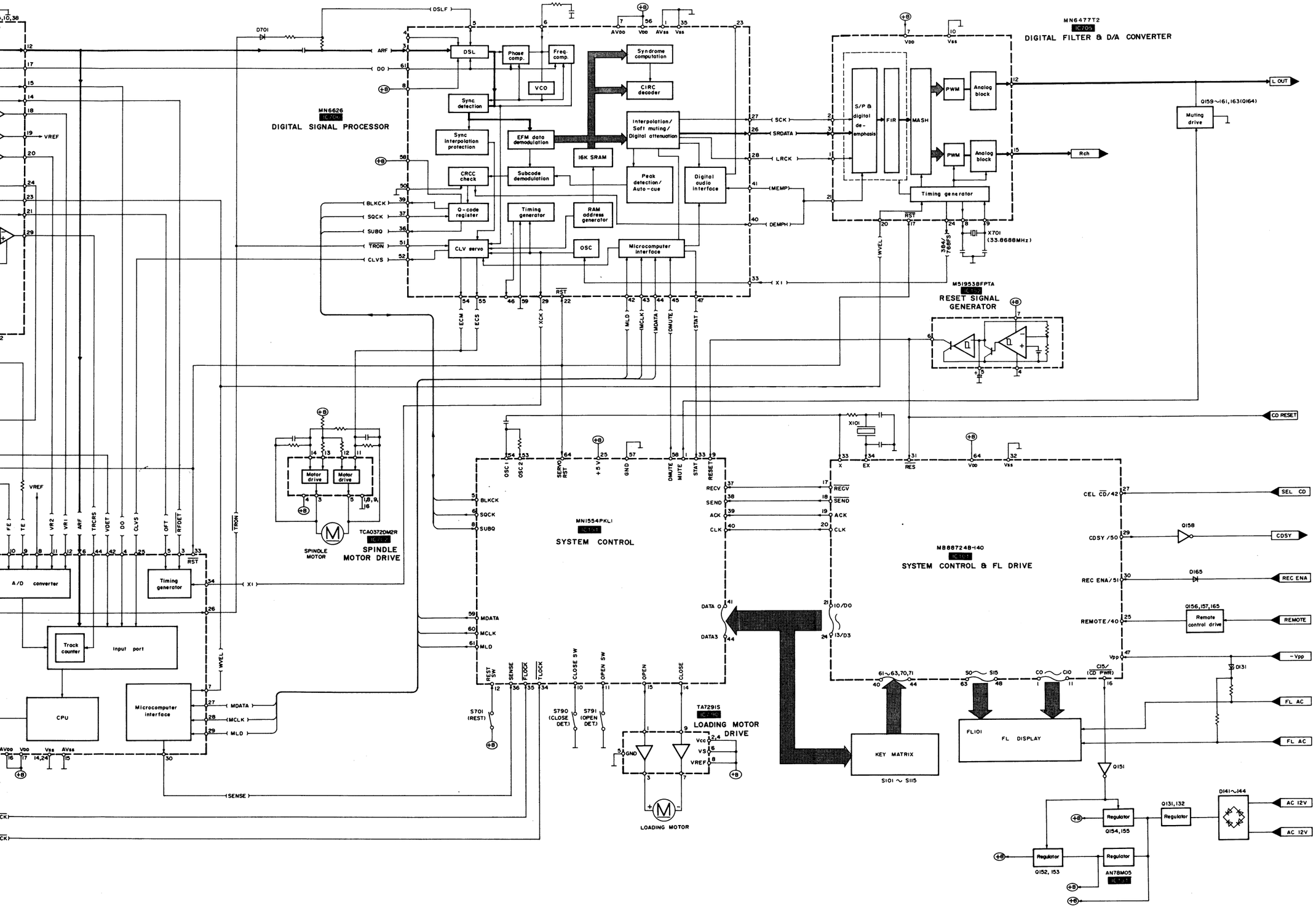
PIN No.	36	35	34	33	32	31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
CONNECTION	F2	F2	NP	NP	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G	NP	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10	S11	S12	S13	S14	S15	S16	NP	NP	F1	F1

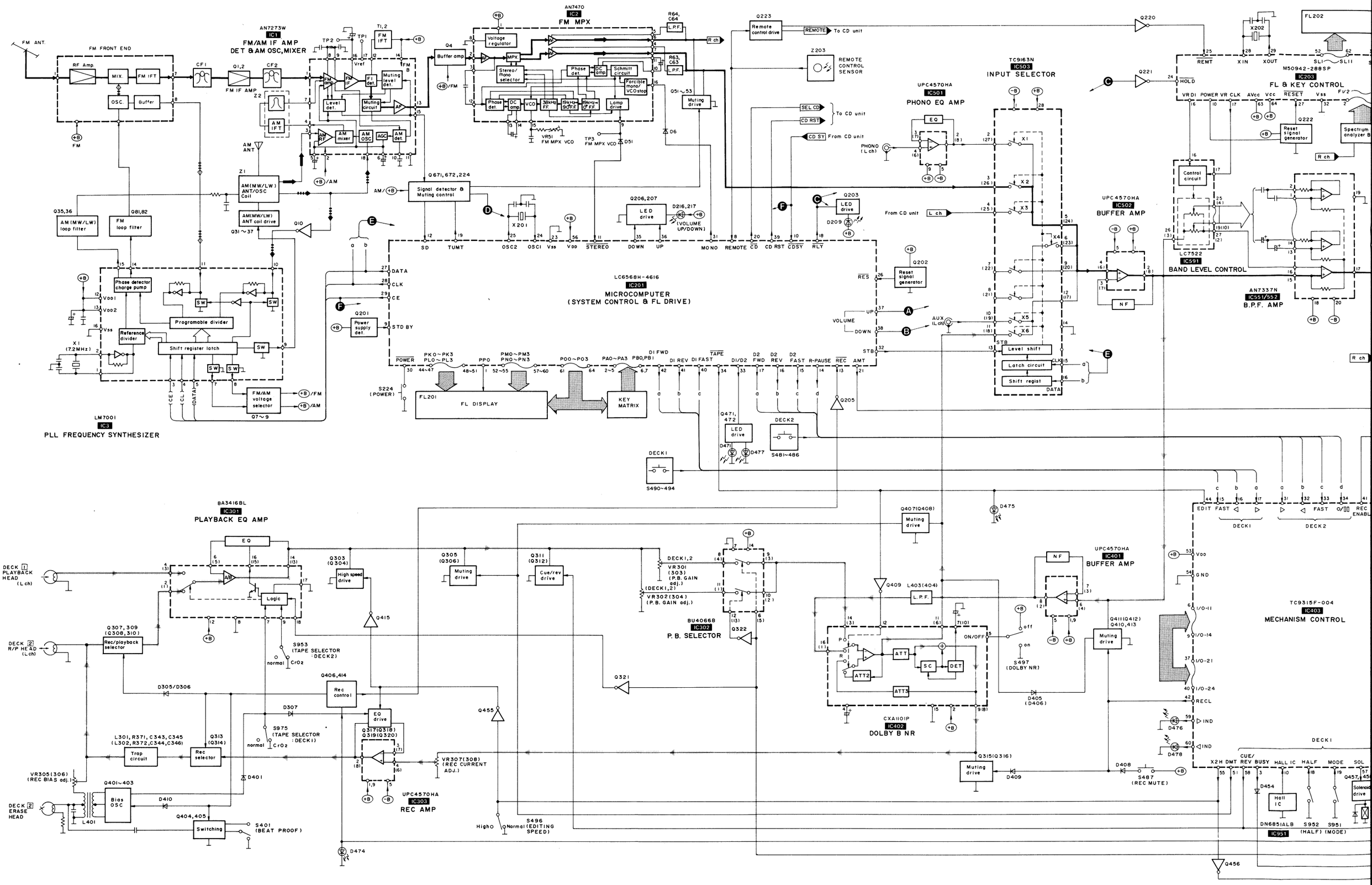
NOTE 1) F1,F2 --- Filament
2) NP ------ No pin
3) 1G~11G -- Grid

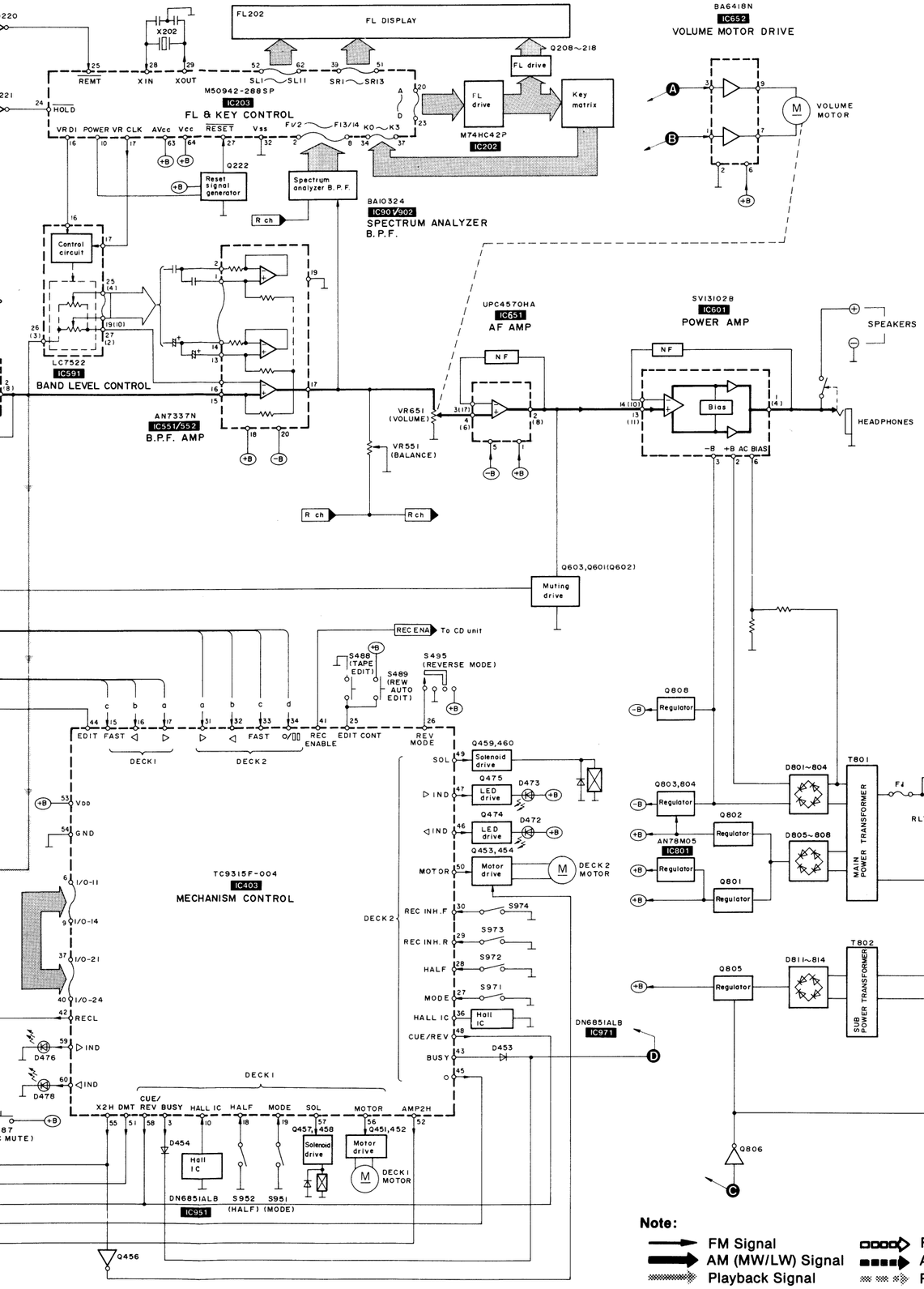
SA-HD52 SA-HD52

■ BLOCK DIAGRAM




MN6626
IC701
DIGITAL SIGNAL PROCESSOR
DSL
Phase comp.
Freq. comp.
VCO
Sync detection
Sync interpolation protection
EFM data demodulation
Subcode demodulation
CRCC check
Q-code register
Timing generator
RAM address generator
CLV servo
OSC
Microcomputer interface
Syndrome computation
CIRC decoder
Interpolation / Soft muting / Digital attenuation
16K SRAM
Peak detection / Auto-cue
Digital audio interface
MN6477T2
IC705
DIGITAL FILTER & D/A CONVERTER
S/P & digital de-emphasis
FIR
MASH
PWM
Analog block
Timing generator
L OUT
Rch
Muting drive
Q159~161, 163(Q164)
X701 (33.8688MHz)
M51953BFPTA
IC502
RESET SIGNAL GENERATOR
CD RESET
X101
MN1554PKL1
IC1101
SYSTEM CONTROL
M38874B4-140
IC1102
SYSTEM CONTROL & FL DRIVE
TA7291S
IC1401
LOADING MOTOR DRIVE
LOADING MOTOR
TCA0372DM2R
IC1402
SPINDLE MOTOR DRIVE
SPINDLE MOTOR
Motor drive
A/D converter
Timing generator
Track counter
Input port
CPU
Microcomputer interface
KEY MATRIX
S101 ~ S115
FL101
FL DISPLAY
S701 (REST)
S790 (CLOSE DET.)
S791 (OPEN DET.)
SEL CD
CDSY
Q158
REC ENA
D165
REMOTE
Q156,157,165
Remote control drive
-Vpp
D131
FL AC
FL AC
Q151
Q131,132
Regulator
D141~144
AC 12V
AC 12V
Q154,155
Q152, 153
AN78M05
IC1403
Note:
CD signal

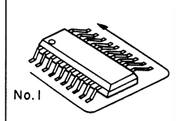

FM ANT.
FM FRONT END
RF Amp.
MIX.
FM IFT
OSC.
Buffer
CF1
CF2
Q1,2
FM IF AMP
Z2
AM IFT
AM ANT
Z1
AM(MW/LW) ANT/OSC Coil
AM(MW/LW) ANT coil drive
Q31~37
Q10
AN7273W
IC1
FM/AM IF AMP
DET & AM OSC, MIXER
TP1
TP2
T1,2
FM IFT
Vref
FM IF
FM det.
Muting level det.
Level det.
Muting circuit
AF
AM RF
AM mixer
AM OSC
AGC
AM det.
Q4
Buffer amp
AN7470
IC2
FM MPX
Voltage regulator
MPX
Stereo/mono selector
Phase det.
DC amp
Schmitt circuit
Forcible mono/VCO stop
VCO
38kHz F.F.
19kHz 90°F.F.
19kHz 0°F.F.
Lamp drive
VR51 FM MPX VCO
TP3 FM MPX VCO
D51
R64, C64 L.P.F.
R63, C63 L.P.F.
R ch
D51~53
Muting drive
D6
Q671,672,224
Signal detector & Muting control
AM/(+B)
Q35,36
AM(MW/LW) loop filter
Q81,82
FM loop filter
Q206,207
LED drive
D216,217
(VOLUME UP/DOWN)
X201
SD
TUMT
OSC2
OSCI
Vss
Vdd
STEREO
DOWN
UP
MONO
REMOTE
CD
CD RST
CDSY
RLY
LC6568H-4616
IC201
MICROCOMPUTER
(SYSTEM CONTROL & FL DRIVE)
Q223
Remote control drive
REMOTE
To CD unit
Z203
REMOTE CONTROL SENSOR
SEL CD
CD RST
CD SY
From CD unit
Q220
Q221
HOLD
TC9163N
IC503
INPUT SELECTOR
X1
X2
X3
X4
X5
X6
Level shift
Latch circuit
Shift regist
DATA
CLK
STB
UPC4570HA
IC501
PHONO EQ AMP
EQ
PHONO (L ch)
From CD unit
L ch
UPC4570HA
IC502
BUFFER AMP
NF
LC7522
IC591
BAND LEVEL CONTROL
Control circuit
AN7337N
IC551/552
B.P.F. AMP
FL202
M50942-288SP
IC203
FL & KEY CONTROL
REMT
XIN
XOUT
SLI
SLII
VRDI
POWER
VR CLK
AVcc
Vcc
RESET
Vss
FV2
Reset signal generator
Spectrum analyzer B
Q202
Reset signal generator
RES
VOLUME
UP
DOWN
AUX (L ch)
Q203
LED drive
D209
PK0~PK3
PL0~PL3
PP0
PM0~PM3
PN0~PN3
PO0~PO3
PA0~PA3
PB0,PB1
DI FWD
DI REV
DI FAST
TAPE
DI/D2
D2 FWD
D2 REV
D2 FAST
R-PAUSE
REC
AMT
POWER
S224 (POWER)
FL201
FL DISPLAY
KEY MATRIX
Q205
Q471, 472
LED drive
D471
D477
DECK2
S481~486
DECK1
S490~494
Q201
Power supply det.
STD BY
DATA
CLK
CE
a
b
LM7001
IC3
PLL FREQUENCY SYNTHESIZER
Phase detector charge pump
Programable divider
Reference divider
Shift register latch
SW
X1 (7.2MHz)
Vdd1
Vdd2
Vss
FM/AM voltage selector
Q7~9
(+B)/FM
(+B)/AM
(CE)
(CL)
(DATA)
BA3416BL
IC301
PLAYBACK EQ AMP
EQ
A/B
Logic
DECK 1 PLAYBACK HEAD (L ch)
DECK 2 R/P HEAD (L ch)
Q307, 309 (Q308, 310)
Rec/playback selector
S953 (TAPE SELECTOR :DECK2)
normal
CrO2
Q303 (Q304)
High speed drive
Q305 (Q306)
Muting drive
Q311 (Q312)
Cue/rev drive
Q415
DECK1,2
VR301 (303) (P.B. GAIN adj.)
VR302 (304) (P.B. GAIN adj.)
BU4066B
IC302
P.B. SELECTOR
Q322
Q321
Q455
D305/D306
D307
Q406,414
Rec control
EQ drive
Q317(Q318) Q319(Q320)
S975 (TAPE SELECTOR :DECK1)
L301, R371, C343, C345 (L302, R372, C344, C346)
Trap circuit
Q313 (Q314)
Rec selector
VR305(306) (REC BIAS adj.)
VR307(308) (REC CURRENT ADJ.)
UPC4570HA
IC303
REC AMP
Q401~403
Bias OSC
L401
D401
D410
Q404,405
Switching
S401 (BEAT PROOF)
DECK 2 ERASE HEAD
D474
High
Normal
S496 (EDITING SPEED)
Q407(Q408)
Muting drive
D475
Q409
L403(404)
L.P.F.
CXA1101P
IC402
DOLBY B NR
ATT
ATT2
ATT3
SC
DET
ON/OFF
S497 (DOLBY NR)
D405 (D406)
Q411(Q412) Q410,413
Muting drive
Q315(Q316)
Muting drive
D409
D408
S487 (REC MUTE)
UPC4570HA
IC401
BUFFER AMP
NF
TC9315F-004
IC403
MECHANISM CONTROL
I/O-11
I/O-14
I/O-21
I/O-24
RECL
IND
D476
D478
DECK1
DECK2
EDIT FAST
FAST
REC ENABL
CUE/REV BUSY
HALL IC
HALF
MODE
SOL
D454
Hall IC
DN6851ALB
IC951
S952 (HALF)
S951 (MODE)
Solenoid drive
Q456



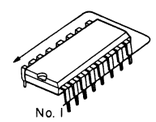
Note:

- FM Signal
- AM (MW/LW) Signal
- Playback Signal
- FM OSC Signal
- AM (MW/LW) OSC Signal
- Recording Signal

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

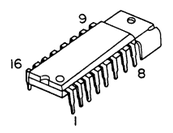


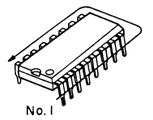
M51953BFPTA	8 Pin
TCA0372DM2R	16 Pin
MN6477T2	24 Pin
AN8800SCE2	42 Pin



BA10324	14 Pin
BU4066B	14 Pin
M74HC42P	16 Pin
M50942-288SP	64 Pin

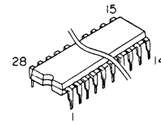
AN8377N



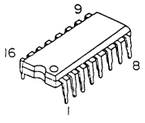


AN7470	16 Pin
CXA1101P	16 Pin
AN7273W	18 Pin
AN7337N	20 Pin
MB88724B-140	64 Pin

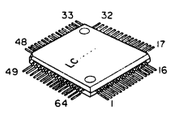
LC7522
TC9163N

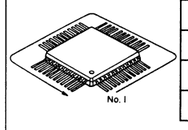


LM7001



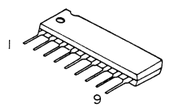
LC6568H-4616



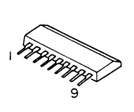


MN6650	44 Pin
TC9315F-004	60 Pin
MN1554PKL1	64 Pin
MN6626	64 Pin

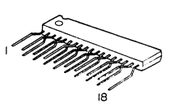
BA6418N



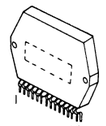
UPC4570HA
TA7291S



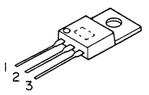
BA3416BL



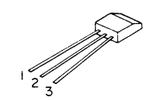
SV13102B

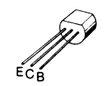


AN78M05

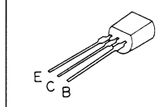


DN6851ALB



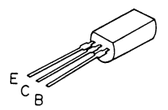


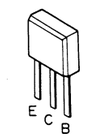
2SB621RSTA
2SC2001KTA
2SD592STA
2SD1302STTA



2SA933SQRSTA
2SC1740SQSTA
DTA114ESTP
DTC114ESTP
DTA124ESTP
DTC124ESTP
DTA144ESTP

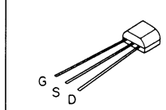
2SC1384RS



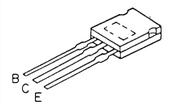


2SB1030RSTA
2SC2785FETA
2SC2787LTA

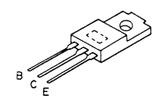
2SJ40CDTA
2SK381CDTA



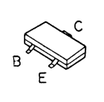
2SD2037DEFTA



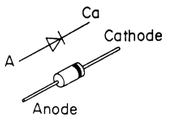
2SB1185DEF
2SD1273PQ

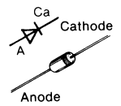


2SB709STW

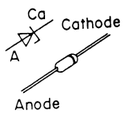


1N5402BM21





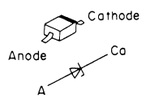
MA165TA
RVD1SR35TR
RVD1SS133TA
1SS291TA



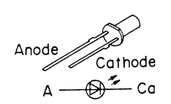
MTZ6R8CT77
MTZ9R1CT77
RVDMTZ6R2CTA
RVDMTZ6R8CTA
RVDMTZ8R2CTA
RVDMTZ12CTA

RVDMTZ15CTA
RVDMTZ24CTA

MA110TW



SLR33MC70F08
SLR33VC70F08



■ SCHEMATIC DIAGRAM (Parts list on pages 85~89, 101~106.)

(This schematic diagram may be modified at any time with development of new technology.)

Note:

- S101 : Stop (■ STOP) switch.
- S102 : Disc holder open/close (▲ OPEN/CLOSE) switch.
- S103, 104 : Skip (SKIP) switches. [S103: I◀◀, S104: ▶▶I]
- S105 : Auto cue (AUTO CUE) switch.
- S106 : Pause (▮▮ PAUSE) switch.
- S107 : Play (▶ PLAY) switch.
- S108, 110 : Search (SEARCH) switches. [S108: ◀◀, S110: ▶▶]
- S109 : Repeat (REPEAT) switch.
- S111 : Program (PROGRAM) switch.
- S112 : Time mode select (TIME MODE) switch.
- S113 : Clear (CLEAR) switch.
- S114 : Edit tape length (TAPE LENGTH) switch.
- S115 : Tape-side select (SIDE A/B) switch.
- S701 : Rest detector switch in "off" position.
- S790 : Disc holder "close" detector switch in "off" position.
- S791 : Disc holder "open" detector switch in "off" position.

- The voltage value and waveforms are the reference voltage of this unit measured by DC electronic voltmeter (high impedance) and oscilloscope on the basis of chassis.
  Accordingly, there may arise some error in voltage values and waveforms depending upon the internal impedance of the tester or the measuring unit.
  * The parenthesized are the values of voltage generated during playing (Test disc 1kHz, L+R, 0dB), others are voltage values in stop mode.

- Important safety notice:
  Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

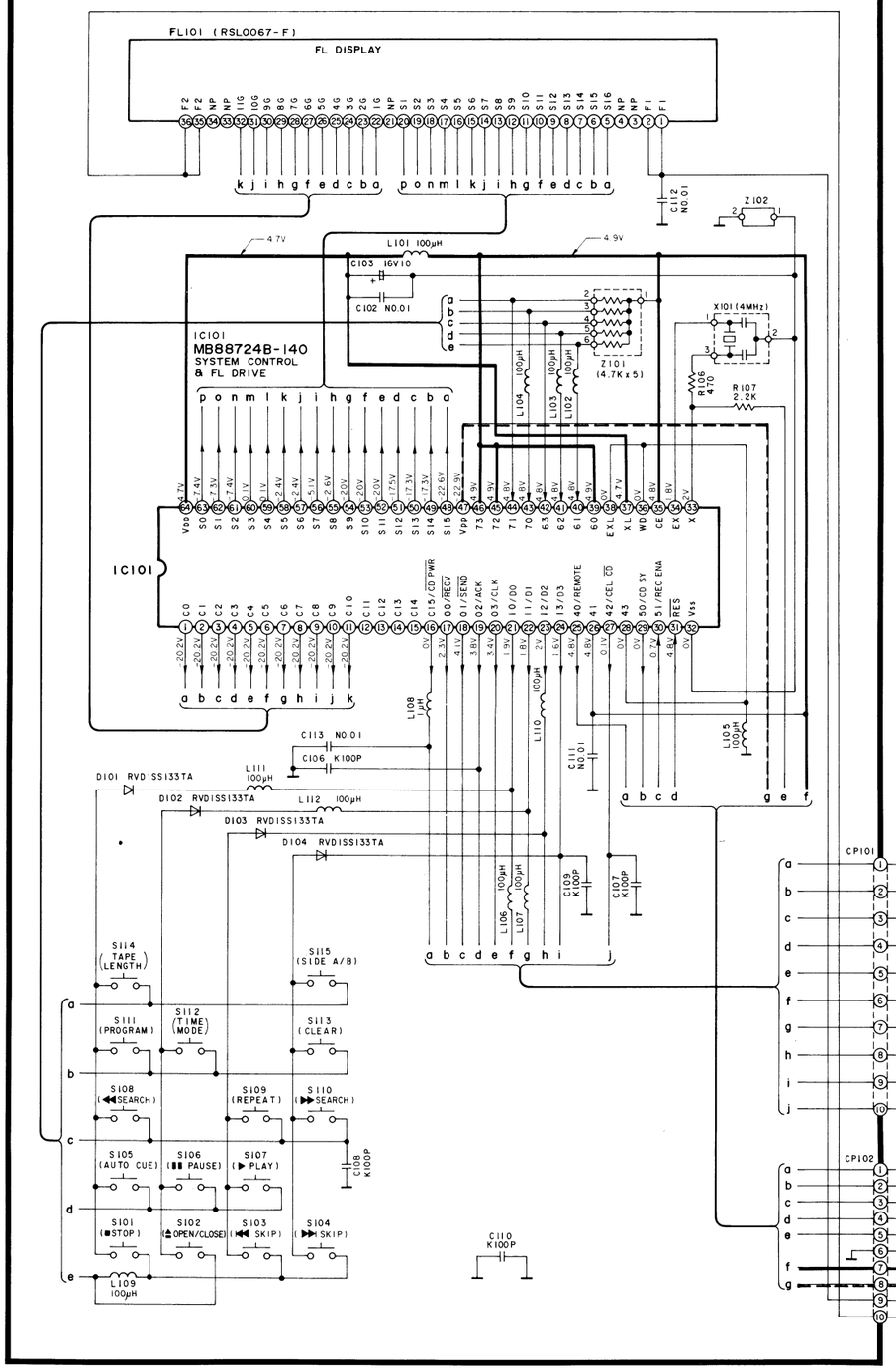
- ——— / - - - - : Positive voltage lines and negative voltage lines.
  ▒▒▒ : CD signal lines.

Caution!

IC and LSI are sensitive to static electricity.
Secondary trouble can be prevented by taking care during repair.

- Cover the parts boxes made of plastics with aluminum foil.
- Ground the soldering iron.
- Put a conductive mat on the work table.
- Do not touch the pins of IC or LSI with fingers directly.

B FL (CD) CIRCUIT



C CD CIRCUIT

10 11 12 13 14 15 16 17 18 19

C CD CIRCUIT

D MOTOR/SWITCH CIRCUIT

IC152
M51953BFPTA
RESET SIGNAL GENERATOR

IC151
MN1554PKLI
SYSTEM CONTROL

IC131
AN78M05
REGULATOR

IC790
TA7291S
MOTOR DRIVE

Q131,132
2SD2037DEFTA
REGULATOR

Q156
DTC124ESTP
SWITCHING (REMOTE)

Q157
2SA933SQRSTA
SWITCHING (REMOTE)

Q165
2SC1740SQSTA
SWITCHING (REMOTE)

Q158
DTC124ESTP
SWITCHING (SYNCHRO EDIT)

Q152,154
2SB621RSTA
RESET SIGNAL GENERATOR

Q153,155
2SC1740SQSTA
RESET SIGNAL GENERATOR

Q151
DTC124ESTP
REGULATOR

Q159
DTA124ESTP
MUTING CONT.

Q161
DTA114ESTP
MUTING CONT.

Q160
DTC124ESTP
MUTING CONT.

Q163,164
2SC2001KTA
MUTING

TO N POWER TRANSFORMER CIRCUIT (W131) On page 68.

TO K MAIN CIRCUIT (W151) On page 67.

TO A SERVO CIRCUIT (CS702) On page 58.

CD signal

20 21 22 23 24 25 26 28 29 30

A SERVO CIRCUIT

OPTICAL PICKUP

PD LD

CS701 GND PD LD +B RF +B A1 A4 A2 A3 GND NC TD- TD+ FD- FD+

GND VREF RF Vcc

TRACKING COIL

FOCUS COIL

Q701 2SB709STW LASER POWER DRIVE

R701 10 4.9V (4.2V) 4.4V (3.7V) 1.2V (2.7V)

C701 6.3V22 R702 470 C702 6.3V47 C703 6.3V100

C733 6.3V100

Best eye adj.

VR701 10K(B)

C710 M0.1 C713 16V4.7 R716 100K C715 K470P R705 47K C716 K0.047 R712 470

IC701 AN8800SCE2 SERVO AMP

PDAD PDBD PDAD PDBD GND Vcc FBAL1 FBAL2 FE VDET TBAL TE BAL -TE CROSS POT PBO PTI PTO TES WVEL PLAY

LDG LDP LD LPD GND LDON AMPI AMPO RF IN RF EQ C AGC ARF C SBDO RFDET BDO Vcc SDO VAD+ VREF VAD- OFTR

C714 50V1 C717 K680P C727 6.3V47 C728 M0.1

R743 IK R741 IK R742 IK

C722 6.3V47 C721 M0.1 C740 M470OP

IC704 MN6650 DIGITAL SERVO PROCESSOR

TRCRS TBAL VDET T6 T5 T4 T3 T2 T1 TOFF X1

TES PLAY /RFDET DO OFT ARF WVEL PBO TE FE VR2 VRI LDON Vss AVss AVDD Vdd TRV TVD FOD TRD KICK

C726 K470P

C749 M0.01 R703 IK C750 D5P

C730 K0.22 C731 6.3V330

/RST /TLOCK /FLOCK SENSE MLD MCLK MDATA /TRON CLVS Vss /TEST

R737 5.6K R738 5.6K R739 5.6K

C763 M0.01

TO C CD CIRCUIT (CN404) on page 55.

CS702 REST SW SMCK /RST STAT D MUTE SUBQ SQCK BLKCK /TLOCK /FLOCK SENSE MLD M DATA MCLK P GND +B(6) TX LD SW D GND +B(7) Rch OUT A GND Lch OUT

TP702 TP703

CP701 ARF VREF

TEST CONNECTOR

IC702 TCA0372DM2R SPINDLE MOTOR DRIVE

GND NC -VIN1 +VIN1 +VIN2 -VIN2 NC GND

GND NC VOUT1 Vcc VOUT2 NC NC GND

SPINDLE MOTOR CP703

TRAVERSE MOTOR

R715 22K C729 M0.1

IC703 AN8377N TRAVERSE MOTOR DRIVE / COIL DRIVE

PC /RST TVD- TVD+ TD- TD+ FD- FD+

PVcc Vcc TB VMON TVDI TDI FDI VREF

R719 12K R720 27K R718 22K

CP702 S701 (REST)

C718 10V100 C758 K0.22

R707 2.2K R708 5.6K R710 1.8K R709 2.2K

C724 M0.033 C721 M0.01 C720 M0.05

7.5V

R735 2.2K R736 6.8K R732 5.6K R733 3.3K R734 5.6K R717 6.8K

C711 M0.01 R704 10K C725 M0.01 R714 47K

IC706 MN6626 DIGITAL SIGNAL PROCESSOR

R722 360

CRC STAT SMCK DMUTE MDAT MCLK MLD MEMP DEMPH BLKCK /CLOCK SOCK -SUBQ Vss X2 X1

SUBC SBCK /TRON CLVS PC ECM ECS Vdd /TEST SSEL MSEL RESY DO EFM PCK PDO

PSEL CSEL PMCK XCK LRCK SCK SRDATA RDG LDG TX /RST WDCK BYTCK FCLK IPFLAG FLAG

AVss IREF ARF DRF DSLF PLLF AVdd RSEL TBUS7 TBUS6 TBUS5 TBUS4 TBUS3 TBUS2 TBUS1 TBUS0

R721 82K C755 M0.1 C732 M1000P D701 MA110TW R747 47K

R723 R724 100K R725 100K R726 47K C734 M0.022 C741 K0.22 C735 K0.22

C737 K0.22 C738 6.3V100 C719 M0.01

C739 M0.01 R726 IK C742 K3900P Z701 SW3 6.3V10 R731 47

IC705 MN6477T2 DIGITAL FILTER & D/A CONVERTER

LRCK BCLK SRDATA COT1 COT2 TEST Vdd X2 XI Vss AVDD L OUT L

384 /768FS 192FS CSEL DEMPH WVEL TP PWM /RST AVDD R OUT R AVSS R AVSS L

X701 (33.8688MHz) C757 D5P C756 D5P

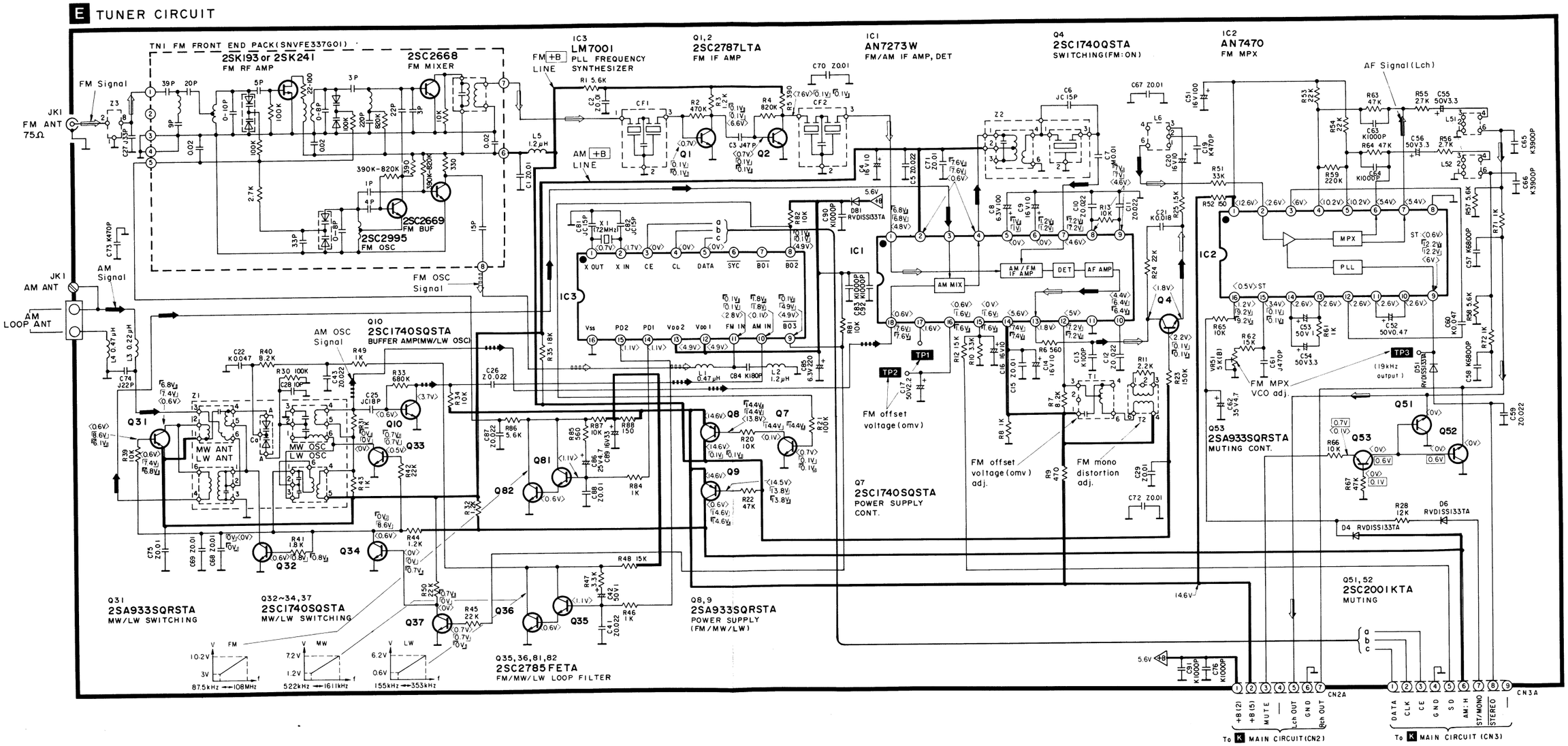
R729 IK R746 IK C754 6.3V22 C744 K1000P

R730 IK R745 IK C753 6.3V22 C745 K1000P

C746 6.3V100 R727 47 C747 M0.1 C752 M0.1

4.9V 7.5V

E TUNER CIRCUIT



J OPERATION CIRCUIT

FL201 (RSL0082-F)

FL DISPLAY

IC201
LC6568H-4616
MICROCOMPUTER SYSTEM CONTROL & FL DRIVE

Q202
2SC1740SQSTA
RESET SIGNAL GENERATOR

Q201
2SA933SQRSTA
POWER SUPPLY DET.

Q205
2SC1740SQSTA
REC CONTROL

Q203
DTC114ESTP
LED DRIVE

Q223
DTA144ESTP
REMOTE CONTROL DRIVE

Q224
2SA933SQRSTA
SIGNAL DETECTOR MUTING CONTROL

Q206,207
2SC1740SQSTA
LED DRIVE

Q206 Q207

IC591
LC7522
BAND LEVEL CONTROL

IC552
AN7337N
B.P.F. AMP

IC551
AN7337N
B.P.F. AMP

FL202 (RSL0083-F)

FL DISPLAY (GRAPHIC

Q208 Q209 Q210 Q211 Q212 Q213 Q214

IC901
IC902
IC901,902
BA10324
SPECTRUM ANALYZER B.P.F.

TO K MAIN CIRCUIT (CN202) on page 67.

TO H TAPE DECK CIRCUIT (CN907) on page 72.

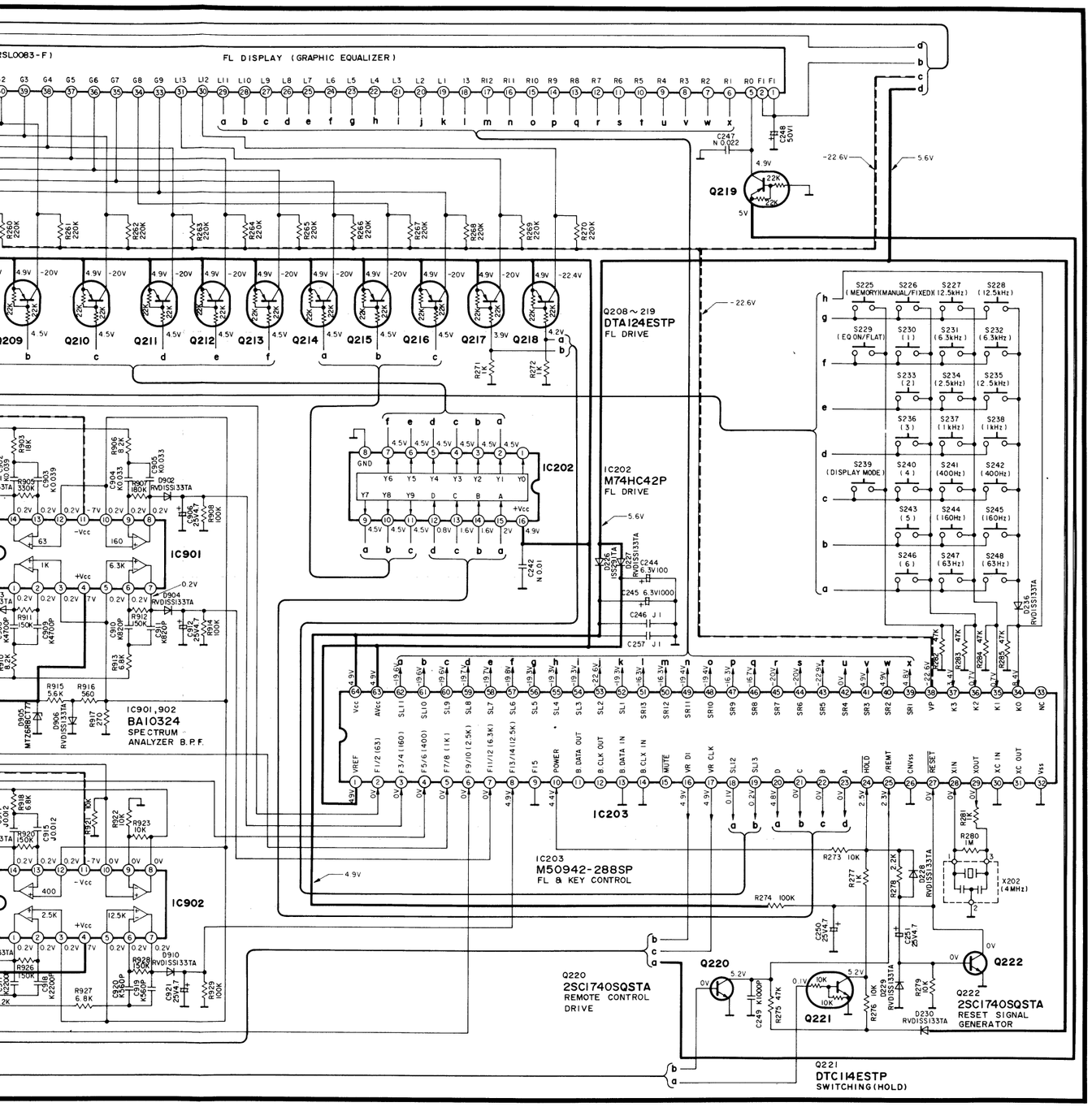
TO K MAIN CIRCUIT (CN203) on page 66.

TO H TAPE DECK CIRCUIT (CN905) on page 92.

TO K MAIN CIRCUIT (CN201) on page 67

TO L VOLUME CIRCUIT (CN651) on page 67.

TO H TAPE DECK CIRCUIT (CN903) on page 72.



Note:

- S201, 202 : Tuning (TUNING) switches. [S201: DOWN, S202: UP]
- S203~S205 Band selector (BAND) switches. [S203: FM, S204: MW, S205: LW]
- S206 : FM mode selector (FM MODE) switch.
- S207, 208 : Preset tuning switches. [S207: 9, S208: 0]
- S209 : Memory (MEMORY) switch.
- S210 : Memory scan (MEMORY SCAN) switch.
- S211 : Input selectors (AUX) switch.
- S212~215: Preset tuning switches. [S212: 5, S213: 6, S214: 7, S215: 8]
- S216 : Input selectors (CD) switch.
- S217 : Input selectors (TAPE) switch.
- S218~221: Preset tuning switches. [S218: 1, S219: 2, S220: 3, S221: 4]
- S222 : Input selectors (PHONO) switch.
- S223 : Input selectors (TUNER) switch.
- S224 : Power (POWER) switch.
- S225 : Memory (MEMORY) switch.
- S226 : Memory mode-select (MANUAL/FIXED) switch.
- S227, 228 : Equalizer level-control switches. [S227: 12.5kHz DOWN, S228: 12.5kHz UP]
- S229 : Equalization mode-select (EQ ON/FLAT) switch.
- S230 : Preset-memory (1) switch.
- S231, 232 : Equalizer level-control switches. [S231: 6.3kHz DOWN, S232: 6.3kHz UP]
- S233 : Preset-memory (2) switch.
- S234, 235 : Equalizer level-control switches. [S234: 2.5kHz DOWN, S235: 2.5kHz UP]
- S236 : Preset-memory (3) switch.
- S237, 238 : Equalizer level-control switches. [S237: 1kHz DOWN, S238: 1kHz UP]
- S239 : Display mode (DISPLAY MODE) switch.
- S240 : Preset-memory (4) switch.
- S241, 242 : Equalizer level-control switches. [S241: 400Hz DOWN, S242: 400Hz UP]
- S243 : Preset-memory (5) switch.
- S244, 245 : Equalizer level-control switches. [S244: 160Hz DOWN, S245: 160Hz UP]
- S246 : Preset-memory (6) switch.
- S247, 248 : Equalizer level-control switches. [S247: 63Hz DOWN, S248: 63Hz UP]

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  - * Figure in < >Stand for DC-voltage in FM signal reception mode.
  - * Figure in ⌜ ⌟Stand for DC-voltage in LW signal reception mode.
  - * Figure in ⌜ ⌟Stand for DC-voltage in MW signal reception mode.
  - * Figure in ▭ Stand for DC-voltage in muting mode.
  - * ——— Positive voltage lines
    - – – – Negative voltage lines
    - ⇨ FM signal
    - ➡ AM (LW/MW) signal
    - ⇨ FM OSC signal
    - ➡ AM (LW/MW) OSC signal
    - ⇨ AF signal
    - ⇢ CD signal lines
- The supply part number is described alone in the replacement parts list.

Ref. No.	Production Part No.	Supply Part No.
IC2	AN7470	SVIUPC1161C3

- Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.

Caution!

IC and LSI are sensitive to static electricity. Secondary trouble can be prevented by taking care during repair.

- *Cover the parts boxes made of plastics with aluminum foil.
- *Ground the soldering iron.
- *Put a conductive mat on the work table.
- *Do not touch the pins of IC or LSI with fingers directly.

Note:

- S401 : Beat proof (BEAT PROOF) switch in "3" position. (1 ↔ 2 ↔ 3)
- S481 : DECK 2 Rewind (◀◀ CUE/REV) switch.
- S482 : DECK 2 Reverse-side playback (◀ PLAY) switch.
- S483 : DECK 2 Stop (■ STOP) switch.
- S484 : DECK 2 Forward-side playback (▶ PLAY) switch.
- S485 : DECK 2 Fast-forward (▶▶ CUE/REV) switch.
- S486 : Recording pause (REC PAUSE) switch.
- S487 : Record-muting (REC MUTE) switch.
- S488 : Tape edit (TAPE EDIT) switch.
- S489 : Rewind auto edit (REW AUTO EDIT) switch.
- S490 : DECK 1 Rewind (◀◀ CUE/REV) switch.
- S491 : DECK 1 Reverse-side playback (◀ PLAY) switch.
- S492 : DECK 1 Stop (■ STOP) switch.
- S493 : DECK 1 Forward-side playback (▶ PLAY) switch.
- S494 : DECK 1 Fast-forward (▶▶ CUE/REV) switch.
- S495 : Reverse-mode selector (REVERSE MODE) switch in " ⮌ " position. (⇄, ⮌, ⮌, ↻↺)
- S496 : Edit-recording tape-speed selector (EDITING SPEED) switch in "normal" position. (normal ↔ high)
- S497 : Dolby noise-reduction (DOLBY NR) switch in "off" position. (off ↔ on)
- S951 : DECK 1 Mode switch in "off" position.
- S952 : DECK 1 Cassette half detection switch in "off" position.
- S953 : DECK 1 ATS (CrO_2) switch in "off" position.
- S971 : DECK 2 Mode switch in "off" position.
- S972 : DECK 2 Cassette half detection switch in "off" position.
- S973 : DECK 2 Rev. rec inhibit switch in "off" position.
- S974 : DECK 2 For. rec inhibit switch in "off" position.
- S975 : DECK 2 ATS (CrO_2) switch in "off" position.
- S976 : DECK 2 ATS (Metal) switch in "off" position.

- Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard. Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
  - * Figure in [ ] Stand for DC-voltage in playback signal reception mode.
  - * Figure in << >> Stand for DC-voltage in REC signal reception mode.
  - * Figure in ▭ Stand for DC-voltage in muting mode.
  - * ——— Positive voltage lines ⟹ AF signal
  - – – – Negative voltage lines
  - ▱▱▱

10 11 12 13 14 15 16 17 18 19

TO J OPERATION CIRCUIT(CP651) on page 62.

L VOLUME CIRCUIT

IC651 UPC4570HA AF AMP

IC652 BA6418N VOLUME MOTOR DRIVE

IC501 UPC4570HA PHONO EQ AMP

IC502 UPC4570HA BUFFER AMP

PLAYBACK Signal

IC601 SV13102B POWER AMP

Q601, 602 2SC2001KTA MUTING DRIVE

Q603 2SA933SQRSTA MUTING DRIVE

Q803 2SB1185DEF REGULATOR

Q804 2SA933SQRSTA REGULATOR

Q802 REGULATOR

Q801 REGULATOR

IC801 AN78M05 REGULATOR

Q808 2SB621RSTA REGULATOR

Q805 2SC1384RS REGULATOR

Q806 DTC114ESTP SWITCHING

Q807 2SD1302STTA RELAY DRIVE

Q801, 802 2SD1273PQ REGULATOR

M HEADPHONES CIRCUIT

HEADPHONES

L ch SPEAKERS R ch

N POWER TRANSFORMER CIRCUIT

T801

TO C CD CIRCUIT (CN131) on page 56.

O POWER SUPPLY CIRCUIT

T802

RLY801

D820 RVDISS133TA

D811 ~ 814 RVDISR35TR

S401 (BEAT PROOF)

AC 230V (50Hz)

TO J OPERATION CIRCUIT (CP203) on page 61.

TO J OPERATION CIRCUIT (CP202) on page 61.

TO C CD CIRCUIT (CN151) on page 56.

TO H TAPE DECK CIRCUIT(W401) on page 72.

TO H TAPE DECK CIRCUIT(W402) on page 72.

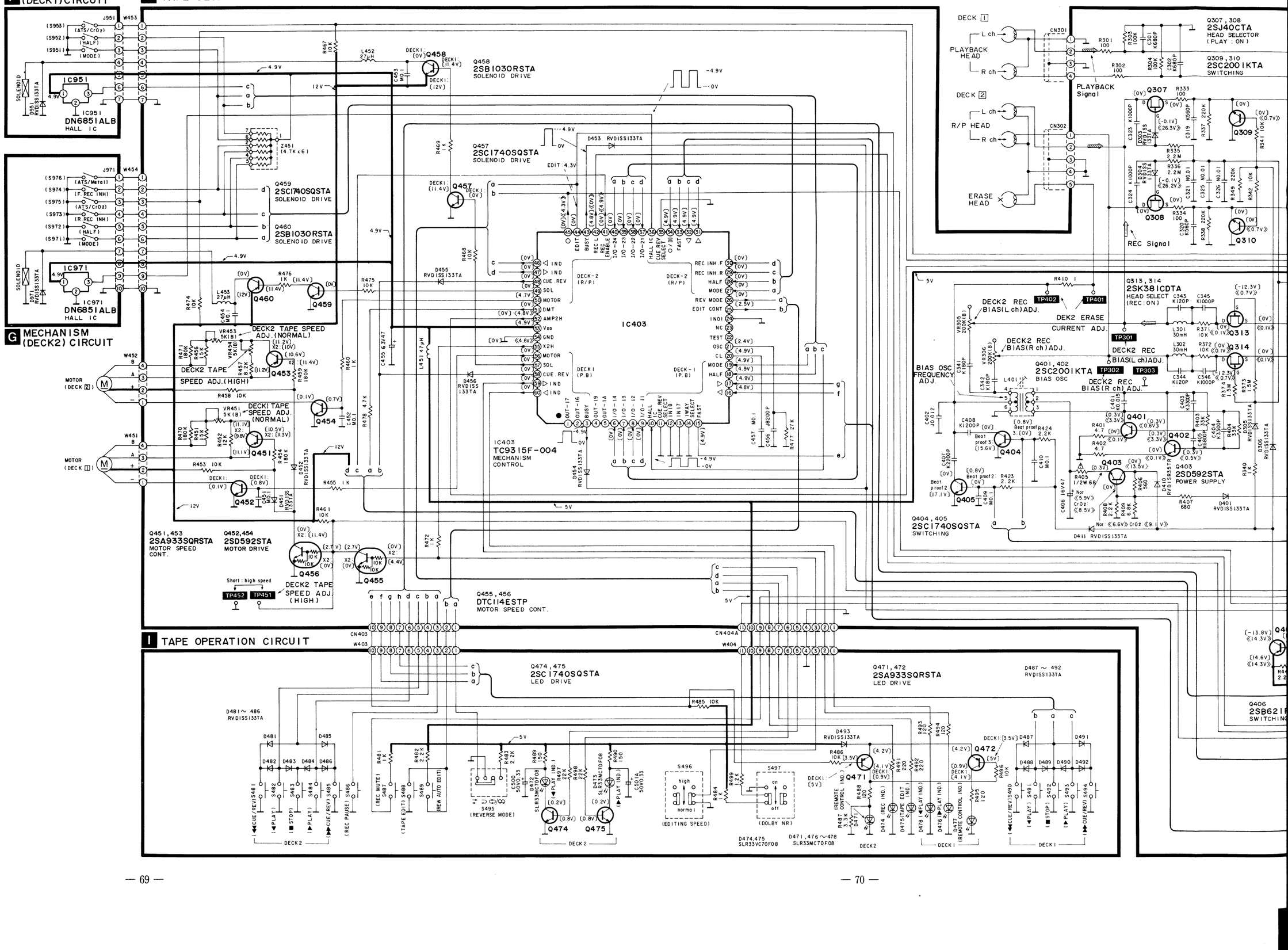
TO J OPERATION CIRCUIT(CP201) on page 62.

F MECHANISM (DECK I) CIRCUIT

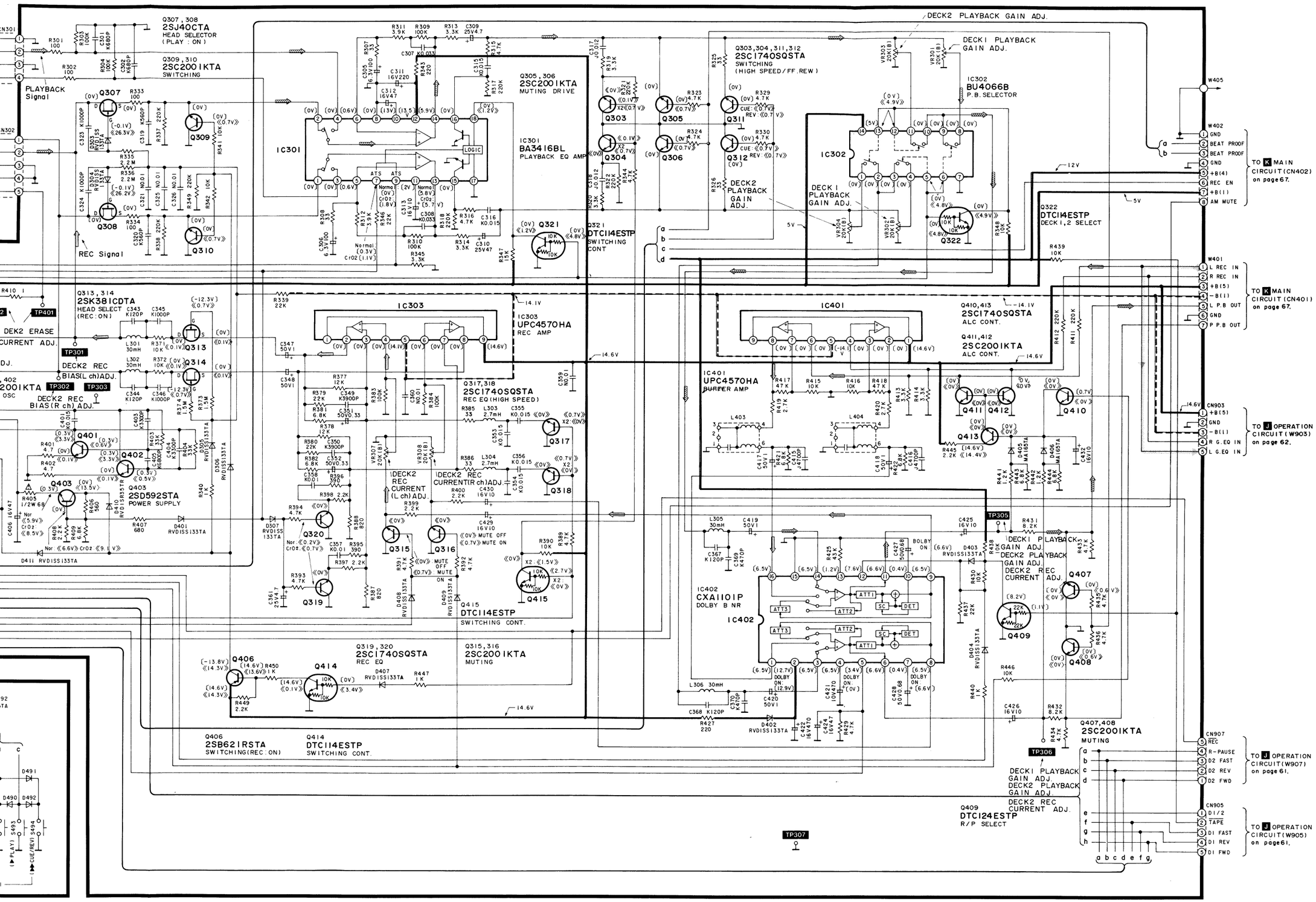
G MECHANISM (DECK 2) CIRCUIT

H TAPE DECK CIRCUIT

I TAPE OPERATION CIRCUIT

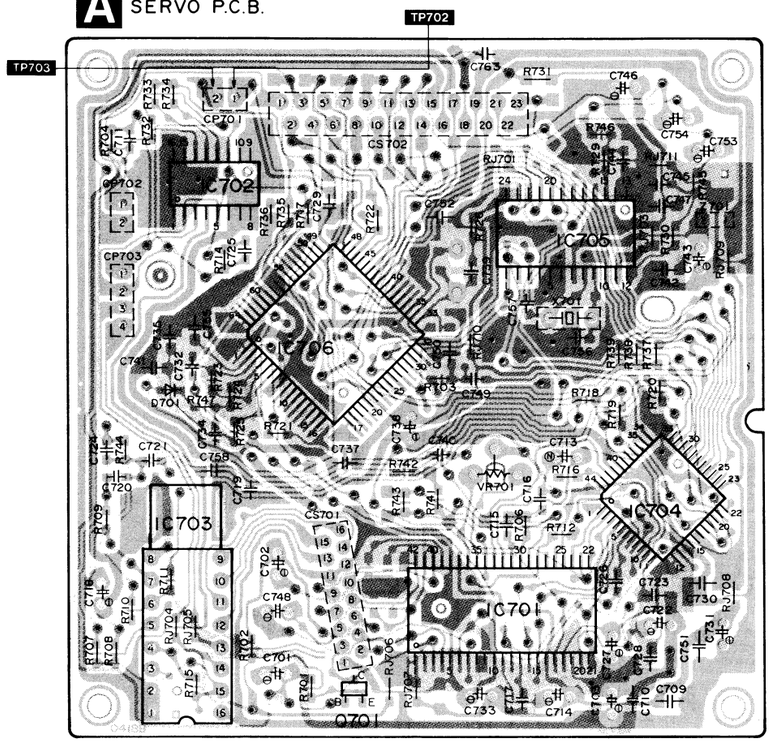


30 31 32 33 34 35 36 37 38 39

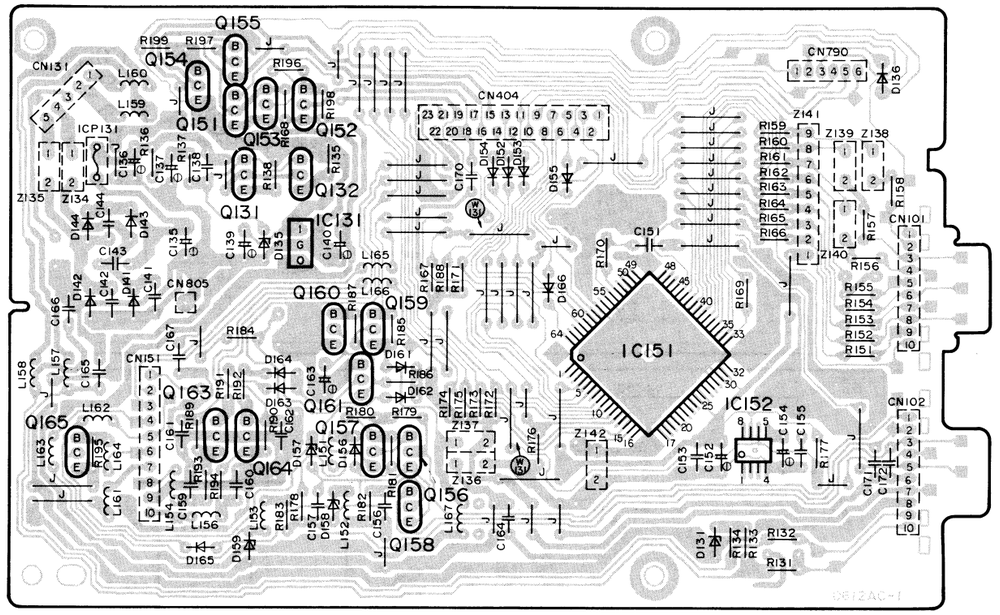


■ PRINTED CIRCUIT BOARDS

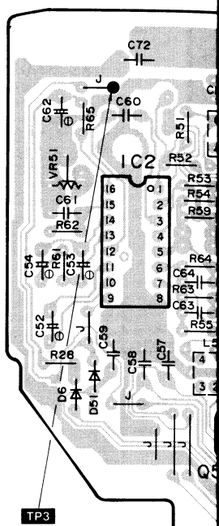
A SERVO P.C.B.



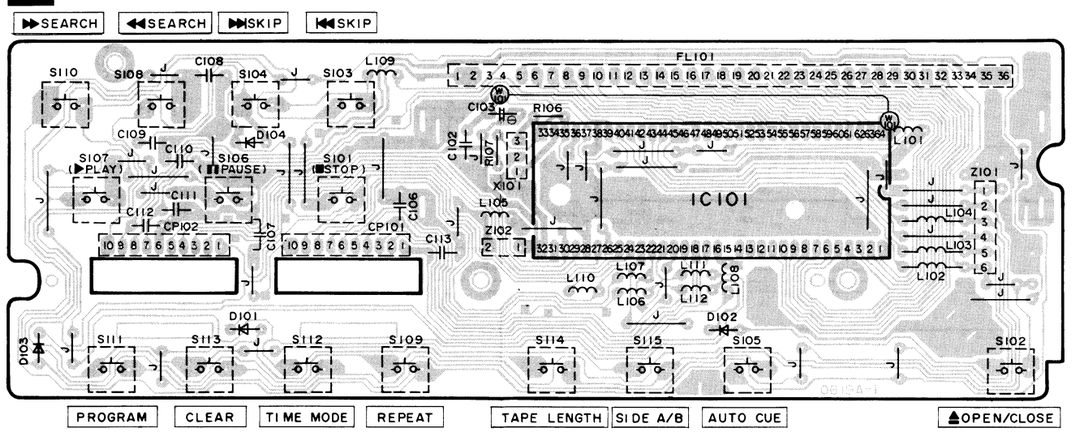
C CD P.C.B.



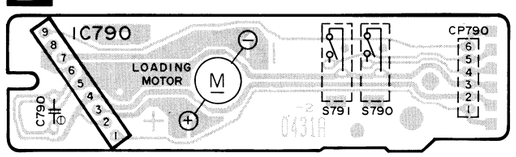
E TUNER P.C.B.



B FL(CD) P.C.B.



D MOTOR/SWITCH P.C.B.



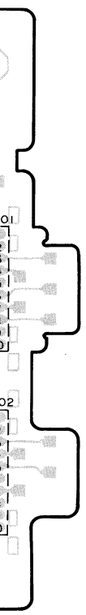
Notes:

This diagram shows a front view of the small outline type IC mounting surface.

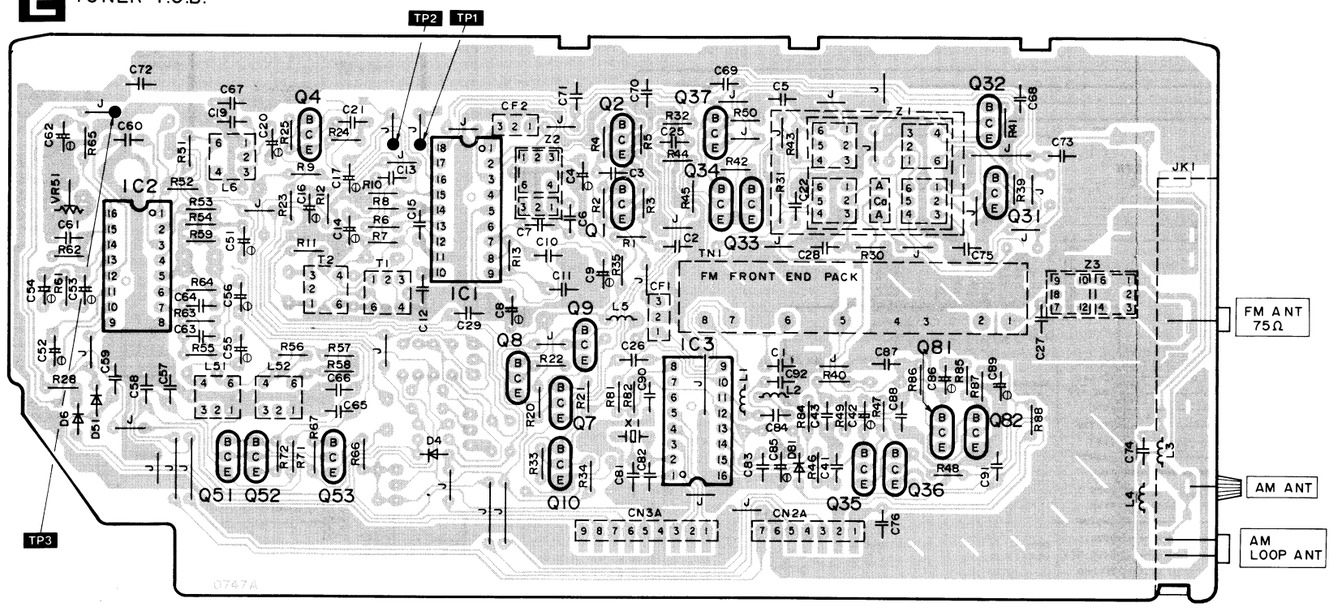
1. The circuit shown in ( ) on the conductor indicates printed circuit on the back side of the printed circuit board.
2. The circuit shown in ( ) on the conductor indicates printed circuit on the front side of the printed circuit board.
3. The symbols (●) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.

• This circuit board diagram may be modified at any time with the developement of new technology.

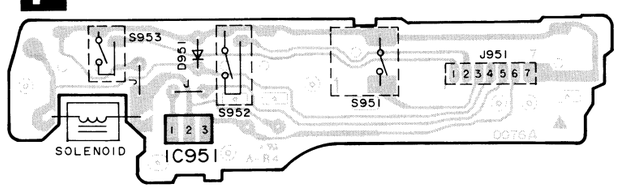
10 11 12 13 14 15 16 17 18 19



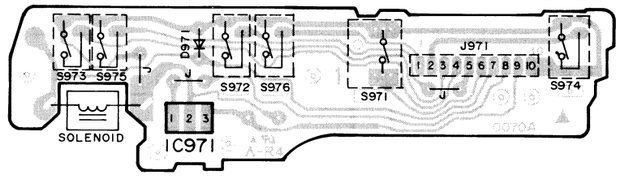
E TUNER P.C.B.



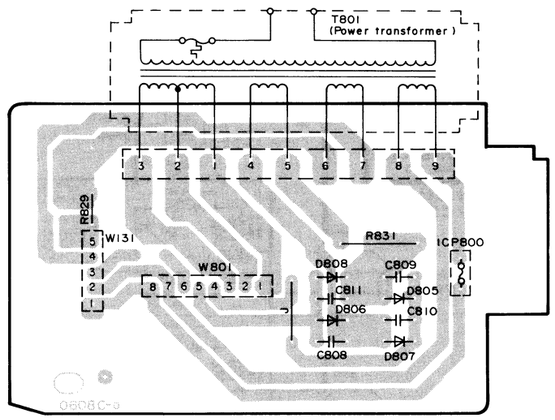
F MECHANISM (DECK1) P.C.B.



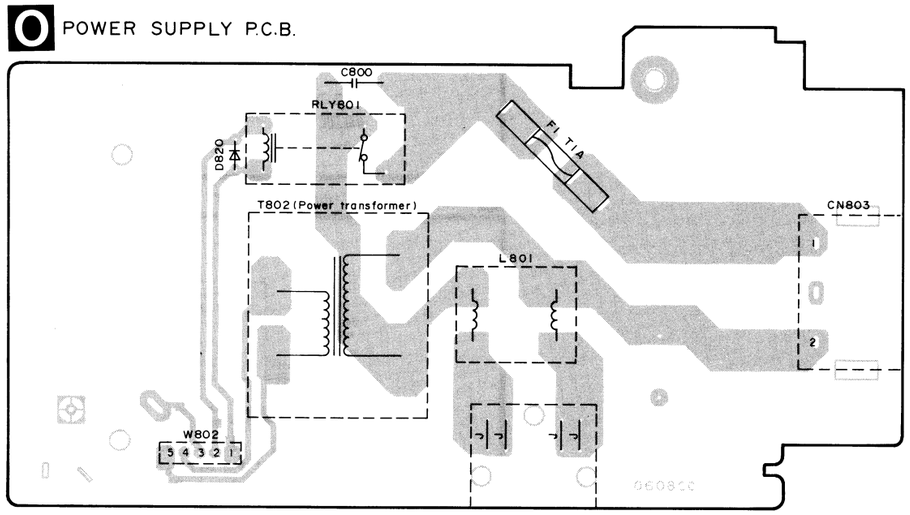
G MECHANISM (DECK2) P.C.B.



N POWER TRANSFORMER P.C.B.

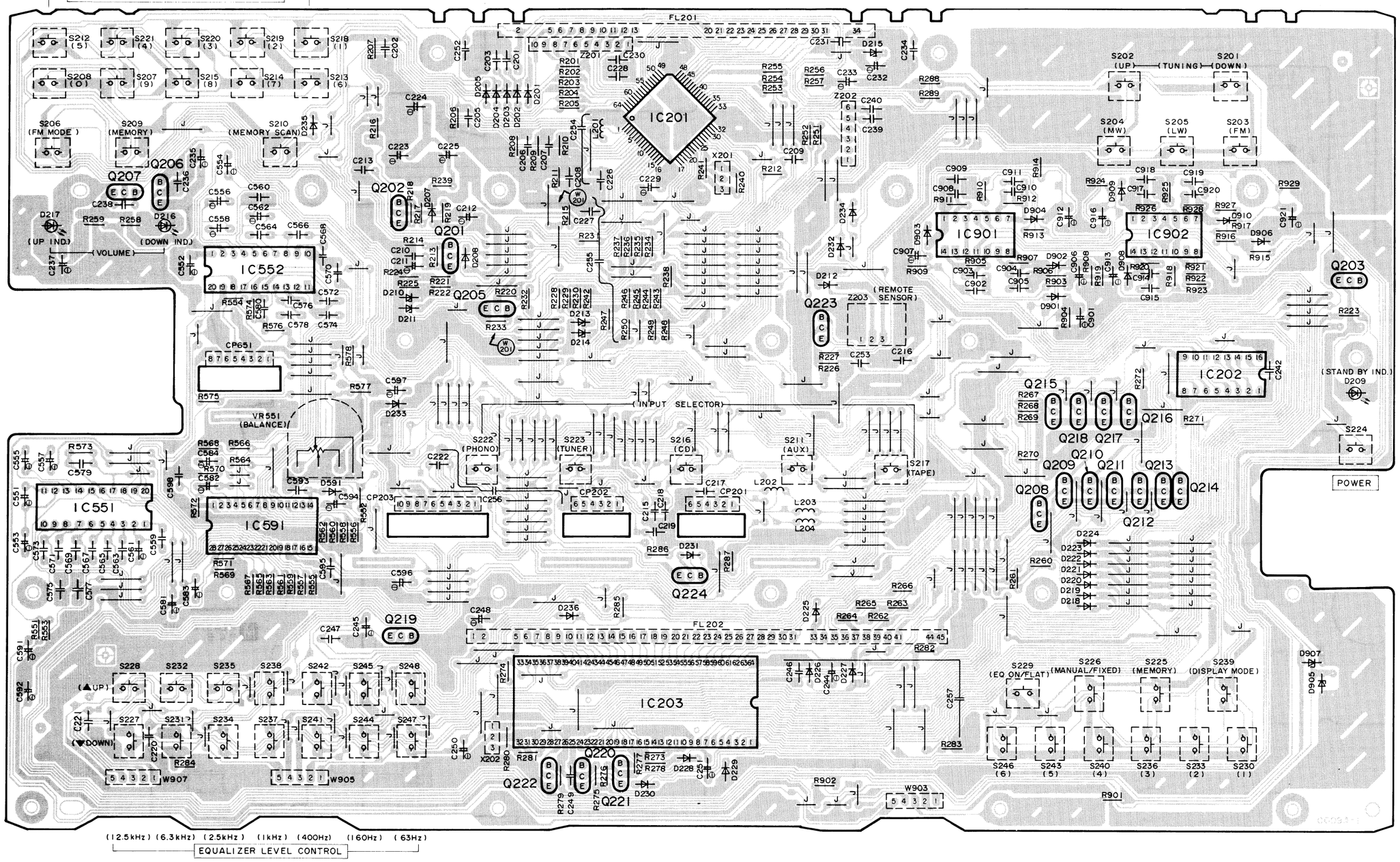


O POWER SUPPLY P.C.B.

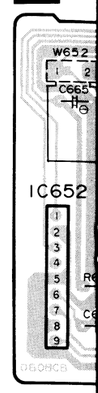


J OPERATION P.C.B.

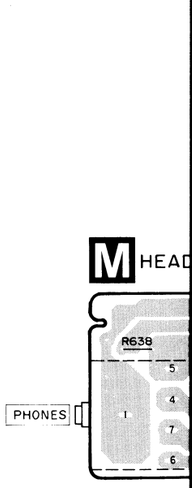
24 CHANNEL RONDOM PRESET TUNING



L VO

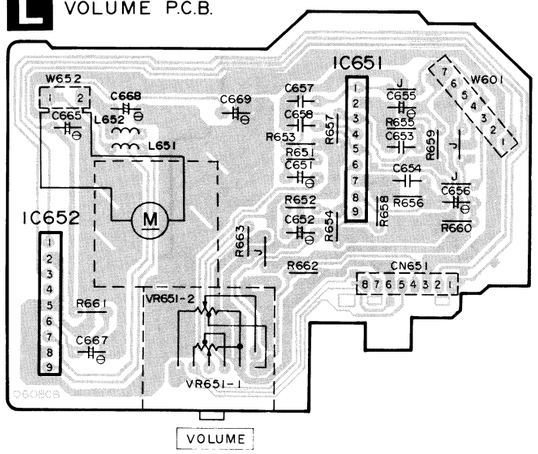


M HEAD

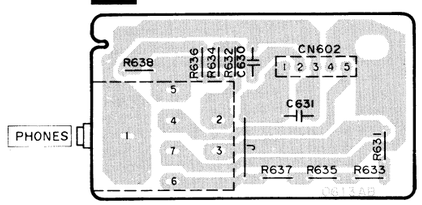


30 31 32 33 34 35 36 37 38 39

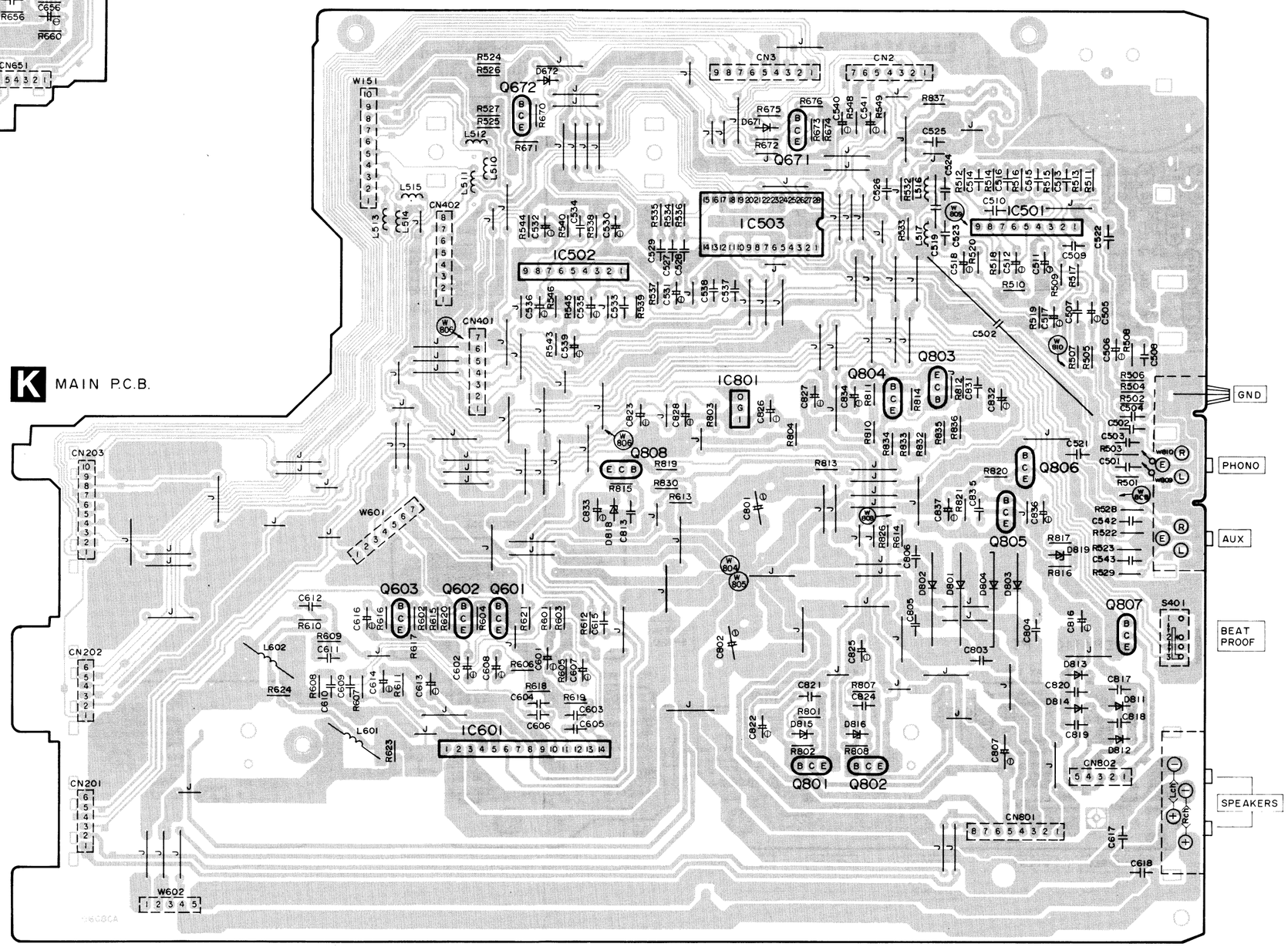
L VOLUME P.C.B.



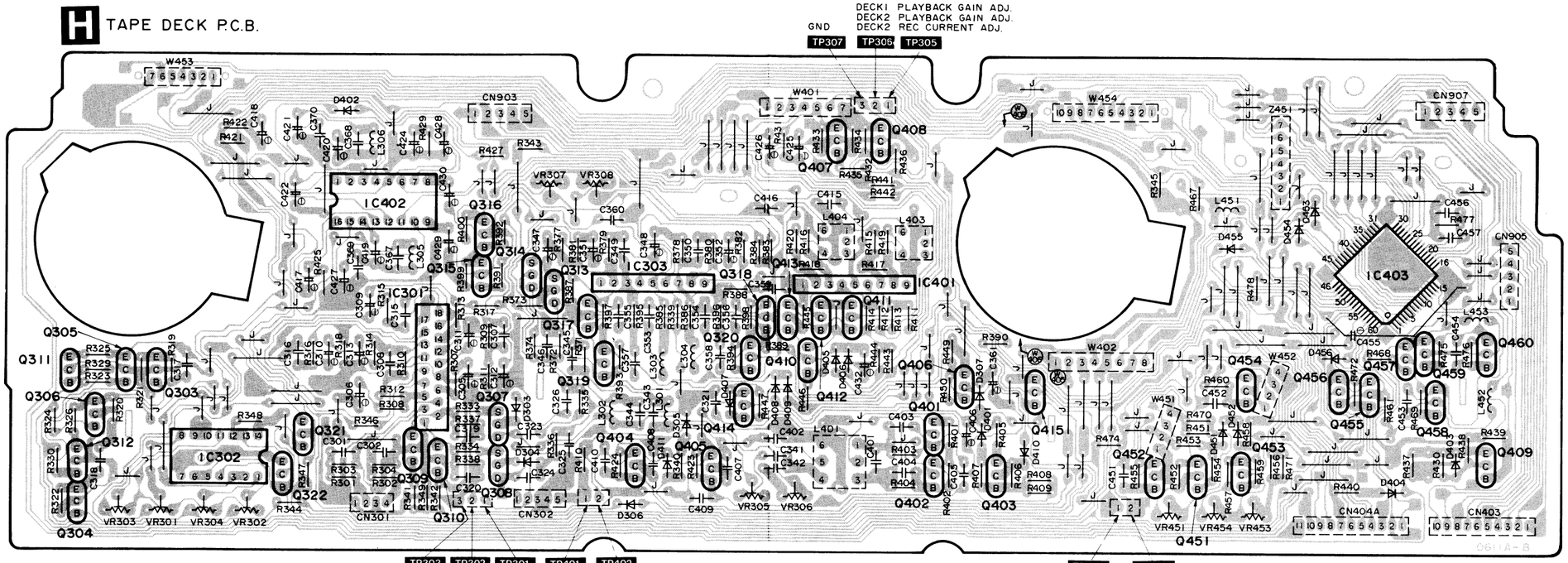
M HEAD PHONES P.C.B.



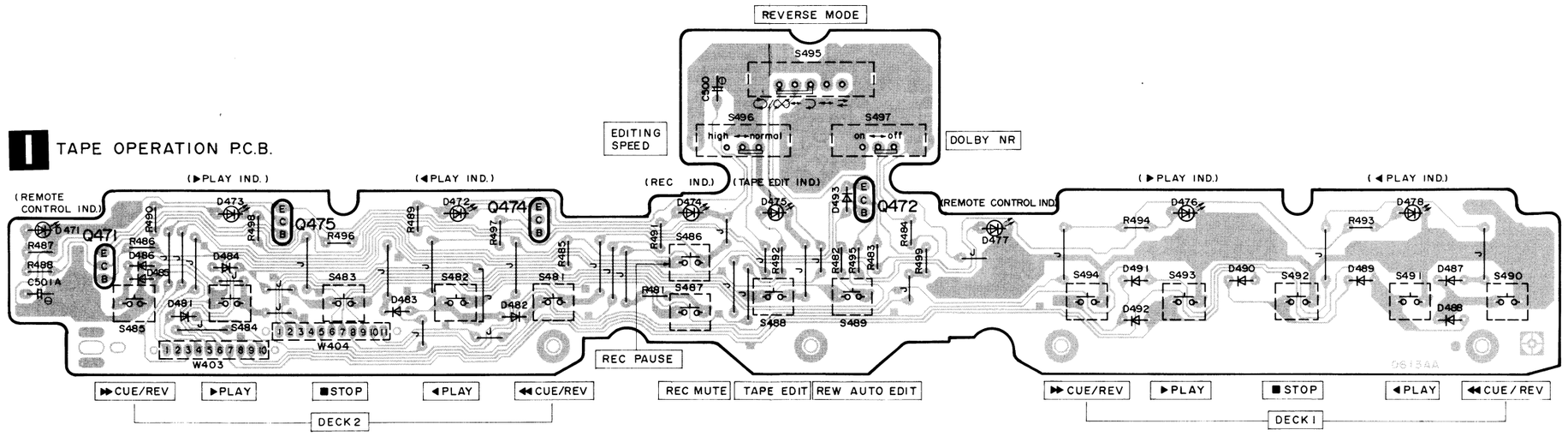
K MAIN P.C.B.



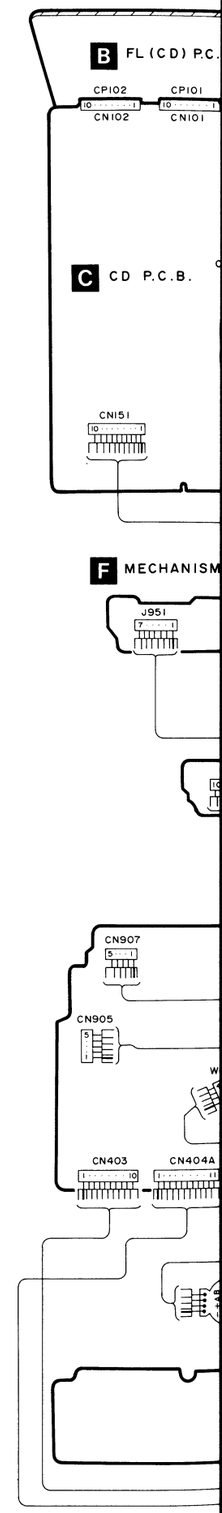
H TAPE DECK P.C.B.



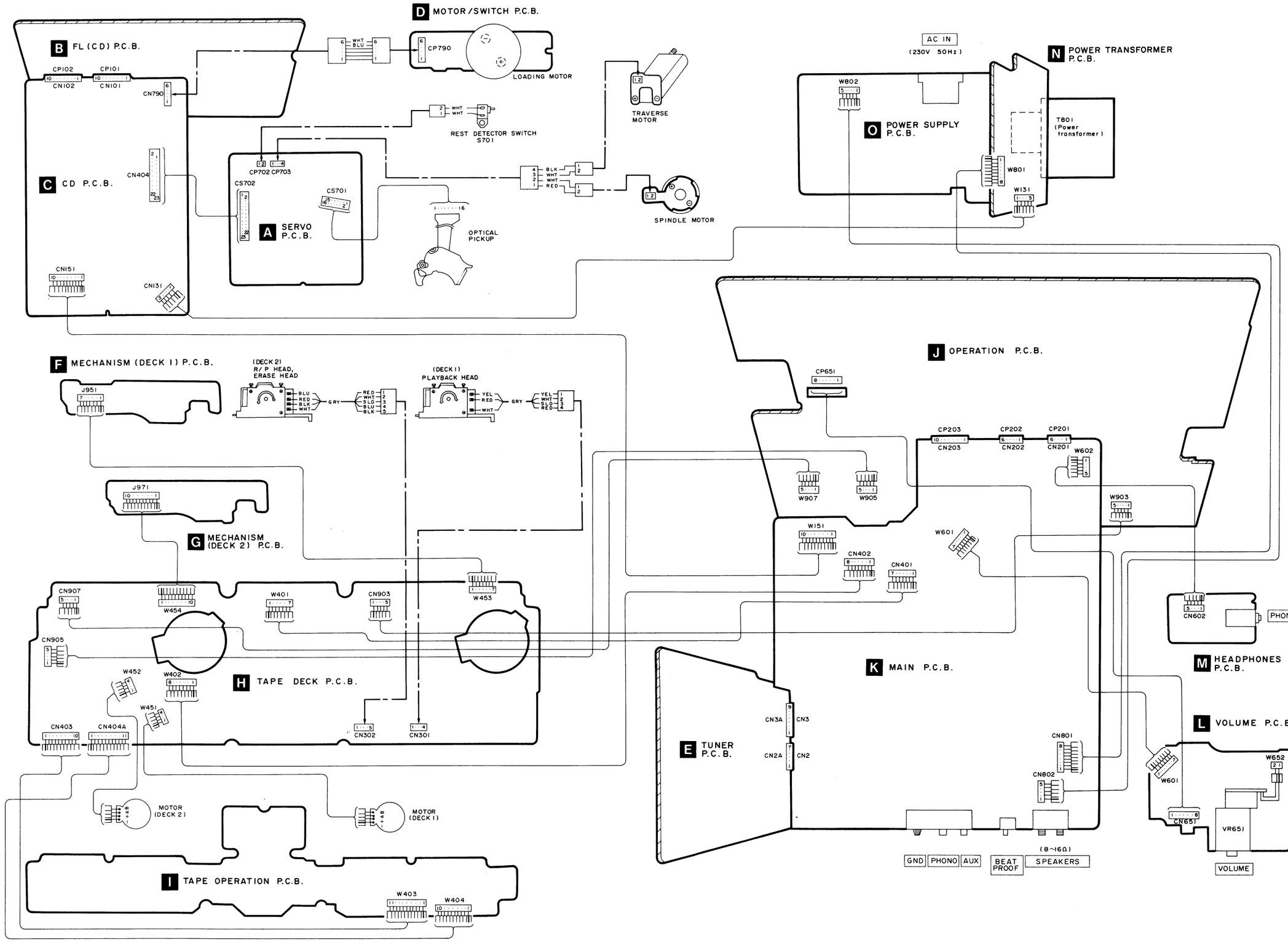
I TAPE OPERATION P.C.B.



WIRING CO



■WIRING CONNECTION DIAGRAM



Notes:
RED.....Red
BLK.....Black
BLU.....Blue
WHT.....White
GRY.....Gray
YEL.....Yellow
SLD.....Shield Wire

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Ⓜ Indicates in Remarks columns parts that are supplied by MESA.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		INTEGRATED CIRCUIT(S)	
IC1	AN7273W	IC, FM/AM IF AMP DET&MIXER	
IC2	SVIUPC1161C3	IC, FM MPX	
IC3	LM7001	IC, PLL FREQ. SYNTHESIZER	
IC101	MB88724B-140	IC, SYSTEM CONTROL&FL DRIVE	
IC131	AN78M05	IC, REGULATOR	
IC151	MN1554PKL1	IC, SYSTEM CONTROL	
IC152	M51953BFPTA	IC, RESET SIGNAL GENERATOR	
IC201	LC6568H-4616	IC, MICROCOMPUTER	Ⓜ
IC202	M74HC42P	IC, LED DRIVE	Ⓜ
IC203	M50942-288SP	IC, FL&KEY CONTROL	
IC301	BA3416BL	IC, PLAYBACK EQ AMP	
IC302	BU4066B	IC, P. B SELECTOR	
IC303	UPC4570HA	IC, REC AMP	Ⓜ
IC401	UPC4570HA	IC, BUFFER AMP	Ⓜ
IC402	CXA1101P	IC, DOLBY B NR	
IC403	TC9315F-004	IC, MECHANISM CONTROL	Ⓜ
IC501, 502	UPC4570HA	IC, PHONO EQ&BUFFER AMP	Ⓜ
IC503	TC9163N	IC, INPUT SELECTOR	
IC551, 552	AN7337N	IC, B. P. F AMP	
IC591	LC7522	IC, BAND LEVEL CONTROL	
IC601	SVI3102B	IC, POWER AMP	
IC651	UPC4570HA	IC, AF AMP	Ⓜ
IC652	BA6418N	IC, VOLUME MOTOR DRIVE	
IC790	TA7291S	IC, LOADING MOTOR DRIVE	
IC801	AN78M05	IC, REGULATOR	
IC901, 902	BA10324	IC, SPECTRUM ANALYZER B. P. F	Ⓜ
IC951	DN6851ALB	IC, HALL (DECK1)	
IC971	DN6851ALB	IC, HALL (DECK2)	
		TRANSISTOR(S)	
Q1	2SC2787L	TRANSISTOR	
Q2	2SC2787L	TRANSISTOR	
Q4	2SC1740SQ	TRANSISTOR	
Q7	2SC1740SQ	TRANSISTOR	
Q8, 9	2SA933SQR	TRANSISTOR	
Q10	2SC1740SQ	TRANSISTOR	
Q31	2SA933SQR	TRANSISTOR	
Q32-34	2SC1740SQ	TRANSISTOR	
Q35, 36	2SC2785FE	TRANSISTOR	
Q37	2SC1740SQ	TRANSISTOR	
Q51, 52	2SC2001K	TRANSISTOR	
Q53	2SA933SQR	TRANSISTOR	
Q81, 82	2SC2785FE	TRANSISTOR	
Q131, 132	2SD2037DEFTA	TRANSISTOR	
Q151	DTC124EST	TRANSISTOR	
Q152	2SB621RSTA	TRANSISTOR	
Q153	2SC1740SQ	TRANSISTOR	
Q154	2SB621RSTA	TRANSISTOR	
Q155	2SC1740SQ	TRANSISTOR	
Q156	DTC124EST	TRANSISTOR	
Q157	2SA933SQR	TRANSISTOR	
Q158	DTC124EST	TRANSISTOR	
Q159	DTA124ESTP	TRANSISTOR	
Q160	DTC124EST	TRANSISTOR	
Q161	DTA114ESTP	TRANSISTOR	
Q163, 164	2SC2001K	TRANSISTOR	
Q165	2SC1740SQ	TRANSISTOR	
Q201	2SA933SQR	TRANSISTOR	
Q202	2SC1740SQ	TRANSISTOR	
Q203	DTC114ESTP	TRANSISTOR	
Q205-207	2SC1740SQ	TRANSISTOR	
Q208-219	DTA124ESTP	TRANSISTOR	
Q220	2SC1740SQ	TRANSISTOR	
Q221	DTC114ESTP	TRANSISTOR	
Q222	2SC1740SQ	TRANSISTOR	
Q223	DTA144ESTP	TRANSISTOR	
Q224	2SA933SQR	TRANSISTOR	
Q303, 304	2SC1740SQ	TRANSISTOR	
Q305, 306	2SC2001K	TRANSISTOR	
Q307, 308	2SJ40CDTA	TRANSISTOR	
Q309, 310	2SC2001K	TRANSISTOR	
Q311, 312	2SC1740SQ	TRANSISTOR	
Q313, 314	2SK381BCDTA	TRANSISTOR	
Q315, 316	2SC2001K	TRANSISTOR	
Q317-320	2SC1740SQ	TRANSISTOR	
Q321, 322	DTC114ESTP	TRANSISTOR	
Q401, 402	2SC2001K	TRANSISTOR	
Q403	2SD592NCR	TRANSISTOR	
Q404, 405	2SC1740SQ	TRANSISTOR	
Q406	2SB621RSTA	TRANSISTOR	
Q407, 408	2SC2001K	TRANSISTOR	
Q409	DTC124EST	TRANSISTOR	
Q410	2SC1740SQ	TRANSISTOR	
Q411, 412	2SC2001K	TRANSISTOR	
Q413	2SC1740SQ	TRANSISTOR	
Q414, 415	DTC114ESTP	TRANSISTOR	
Q451	2SA933SQR	TRANSISTOR	
Q452	2SD592NCR	TRANSISTOR	

Ref. No.	Part No.	Part Name & Description	Remarks
Q453	2SA933SQR	TRANSISTOR	
Q454	2SD592NCR	TRANSISTOR	
Q455, 456	DTC114ESTP	TRANSISTOR	
Q457	2SC1740SQ	TRANSISTOR	
Q458	2SB1030RSTA	TRANSISTOR	
Q459	2SC1740SQ	TRANSISTOR	
Q460	2SB1030RSTA	TRANSISTOR	
Q471, 472	2SA933SQR	TRANSISTOR	
Q474, 475	2SC1740SQ	TRANSISTOR	
Q601, 602	2SC2001K	TRANSISTOR	
Q603	2SA933SQR	TRANSISTOR	
Q671, 672	2SC1740SQ	TRANSISTOR	
Q801, 802	2SD1273-Q	TRANSISTOR	
Q803	2SB1185DEF	TRANSISTOR	
Q804	2SA933SQR	TRANSISTOR	
Q805	2SC1384Q	TRANSISTOR	
Q806	DTC114ESTP	TRANSISTOR	
Q807	2SD1302STTA	TRANSISTOR	
Q808	2SB621RSTA	TRANSISTOR	
		DIODE(S)	
D4	RVD1SS133TA	DIODE	
D6	RVD1SS133TA	DIODE	
D51	RVD1SS133TA	DIODE	
D81	RVD1SS133TA	DIODE	
D101-104	RVD1SS133TA	DIODE	
D131	RVDMTZ6R2CTA	DIODE	M
D135	RVDMTZ8R2CTA	DIODE	M
D136	RVD1SR35TR	DIODE	
D141-144	RVD1SR35TR	DIODE	
D152-156	RVD1SS133TA	DIODE	
D157-159	MTZ9R1CT77	DIODE	M
D161-166	RVD1SS133TA	DIODE	
D201-205	RVD1SS133TA	DIODE	
D207	MA165	DIODE	
D208	RVD1SS133TA	DIODE	
D209	SLR33VC70F08	L. E. D.	M
D210, 211	RVDMTZ8R2CTA	DIODE	M
D212	RVD1SS133TA	DIODE	
D213, 214	RVDMTZ8R2CTA	DIODE	M
D215	RVDMTZ6R2CTA	DIODE	M
D216, 217	SLR33VC70F08	L. E. D.	M
D218-225	RVD1SS133TA	DIODE	
D226	1SS291TA	DIODE	
D227-232	RVD1SS133TA	DIODE	
D233	MTZ6R8CT7A	DIODE	M
D234-236	RVD1SS133TA	DIODE	
D303-307	RVD1SS133TA	DIODE	
D401-404	RVD1SS133TA	DIODE	
D405, 406	MA165	DIODE	
D407-409	RVD1SS133TA	DIODE	

Ref. No.	Part No.	Part Name & Description	Remarks
D410	RVD1SR35TR	DIODE	
D411	RVD1SS133TA	DIODE	
D451-456	RVD1SS133TA	DIODE	
D471-473	SLR33MC70F08	L. E. D.	M
D474, 475	SLR33VC70F08	L. E. D.	M
D476-478	SLR33MC70F08	L. E. D.	M
D481-493	RVD1SS133TA	DIODE	
D591	RVD1SS133TA	DIODE	
D671, 672	RVD1SS133TA	DIODE	
D801-804	1N5402BM21	DIODE	M⚠
D805-808	RVD1SR35TR	DIODE	⚠
D811-814	RVD1SR35TR	DIODE	⚠
D815	RVDMTZ12CTA	DIODE	
D816	RVDMTZ15CTA	DIODE	M
D818	RVDMTZ24CTA	DIODE	M
D819	RVDMTZ6R2CTA	DIODE	M
D820	RVD1SS133TA	DIODE	⚠
D901-904	RVD1SS133TA	DIODE	
D905	MTZ6R8CT7A	DIODE	M
D906	RVD1SS133TA	DIODE	
D907	MTZ6R8CT7A	DIODE	M
D908-910	RVD1SS133TA	DIODE	
D951	RVD1SS133TA	DIODE (DECK1)	
D971	RVD1SS133TA	DIODE (DECK2)	
		IC PROTECTOR(S)	
ICP131	RAHICPN15TA	IC PROTECTOR	
ICP800	RAHICPN15TA	IC PROTECTOR	
		VARIABLE RESISTOR(S)	
VR51	EVNDXAA00B53	V. R	
VR301-304	EVNDXAA00B24	V. R, PLAYBACK GAIN ADJ.	
VR305, 306	EVNDXAA00B25	V. R, RECORDING BIAS ADJ.	
VR307, 308	EVNDXAA00B24	V. R, RECORDING CURRENT ADJ.	
VR451	EVNDXAA00BS3	V. R, TAPE SPEED ADJ. (DECK1)	
VR453, 454	EVNDXAA00BS3	V. R, TAPE SPEED ADJ. (DECK2)	
VR551	EWHFDAF20G15	V. R, BALANCE	
VR651	EUWMN2F20B15	V. R, VOLUME	M
		COIL(S)	
L1	RLQZPR47KT-Y	COIL	
L2	RLQZP1R2KT-Y	COIL	
L3	RLQZPR22KT-Y	COIL	
L4	RLQZPR47KT-Y	COIL	
L5	RLQZP1R2KT-Y	COIL	
L6	SLM1B10-1M	COIL	
L51, 52	RLM2B003-K	COIL	
L101-107	RLQZP101KT-Y	COIL	
L108	RLQZB102K-D	COIL	

Ref. No.	Part No.	Part Name & Description	Remarks
L109-112	RLQZP101KT-Y	COIL	
L151-154	RLQZP3R3KT-Y	COIL	
L156	RLQZP3R3KT-Y	COIL	
L157-160	RLQZB101KT-D	COIL	
L161	RLQZP3R3KT-Y	COIL	
L162-167	RLQZP101KT-Y	COIL	
L201	RLQZP101KT-Y	COIL	
L202-204	RLQZP1R0KT-Y	COIL	
L301, 302	SLQX303-1KT	COIL	
L303, 304	RLQZB272KT-D	COIL	Ⓜ
L305, 306	SLQX303-1KT	COIL	
L401	SL09C9-K	COIL	
L403, 404	RLM2B003-K	COIL	
L451	RLQZB470KT-D	COIL	
L452, 453	RLQZL270KV-Y	COIL	Ⓜ
L510-517	RLQZP101KT-Y	COIL	
L601, 602	SLQY07G-40	COIL	
L651, 652	RLQZP2R2KT-Y	COIL	
L801	RLQZ600-W	COIL	⚠
		TRANSFORMER(S)	
T1	RLI4B002-Z	TRANSFORMER	
T2	RLI4B003-Z	TRANSFORMER	
T801	RTP1N3E001-V	POWER TRANSFORMER(MAIN)	Ⓜ⚠
T802	RTP115E002-V	POWER TRANSFORMER(SUB)	Ⓜ⚠
		COMPONENT COMBINATION(S)	
Z1	RLA6Z002-T	COMPONENT COMBINATION	
Z2	RLI2Z003-T	COMPONENT COMBINATION	Ⓜ
Z3	SLA4Z13-Z	COMPONENT COMBINATION	
Z101	EXBP85472J-R	COMPONENT COMBINATION	Ⓜ
Z102	EXCELDR35V	COMBINATION PART	
Z134-140	EXCELDR35V	COMBINATION PART	
Z141	EXBP88472J-R	COMPONENT COMBINATION	Ⓜ
Z142	EXCELDR35V	COMBINATION PART	
Z201	RCR0003	COMPONENT COMBINATION	Ⓜ
Z202	EXBP85103J-R	COMPONENT COMBINATION	Ⓜ
Z203	RCDGP1U509X	REMOTE SENSOR	
Z451	EXBP86472J-R	COMPONENT COMBINATION	Ⓜ
		FILTER(S)	
CF1	SVFE107MZ2-A	CERAMIC FILTER	
CF2	SVFE107MM-A	CERAMIC FILTER	
		OSCILLATOR(S)	
X1	SVQ49U722T-D	OSCILLATOR, 7.2MHz	Ⓜ
X101	RSXY4M00M03T	OSCILLATOR, 4MHz	Ⓜ
X201, 202	RVBCST4R00MT	OSCILLATOR, 4MHz	

Ref. No.	Part No.	Part Name & Description	Remarks
		DISPLAY TUBE	
FL101	RSL0067-F	DISPLAY TUBE(CD)	
FL201	RSL0082-F	DISPLAY TUBE(TUNER)	Ⓜ
FL202	RSL0083-F	DISPLAY TUBE(GEQ)	Ⓜ
		FM FRONT END PACK	
TN1	SNVFE337G01	FM FRONT END	
		FUSE(S)	
F1	XBA2C10TB0	FUSE, 250V 1A	⚠
		SWITCH(ES)	
S101	EVQ21409K	SW, STOP	
S102	EVQ21409K	SW, OPEN/CLOSE	
S103	EVQ21409K	SW, R. SKIP	
S104	EVQ21409K	SW, F. SKIP	
S105	EVQ21409K	SW, AUTO CUE	
S106	EVQ21409K	SW, PAUSE	
S107	EVQ21409K	SW, PLAY	
S108	EVQ21409K	SW, R. SEARCH	
S109	EVQ21409K	SW, REPEAT	
S110	EVQ21409K	SW, F. SEARCH	
S111	EVQ21409K	SW, PROGRAM	
S112	EVQ21409K	SW, TIME MODE	
S113	EVQ21409K	SW, CLEAR	
S114	EVQ21409K	SW, TAPE LENGTH	
S115	EVQ21409K	SW, SIDE A/B	
S201	EVQ21409K	SW, TUNING DOWN	
S202	EVQ21409K	SW, TUNING UP	
S203	EVQ21409K	SW, FM	
S204	EVQ21409K	SW, MW	
S205	EVQ21409K	SW, LW	
S206	EVQ21409K	SW, FM MODE	
S207	EVQ21409K	SW, PRESET TUNING 9	
S208	EVQ21409K	SW, PRESET TUNING 0	
S209	EVQ21409K	SW, MEMORY	
S210	EVQ21409K	SW, MEMORY SCAN	
S211	EVQ21409K	SW, AUX	
S212	EVQ21409K	SW, PRESET TUNING 5	
S213	EVQ21409K	SW, PRESET TUNING 6	
S214	EVQ21409K	SW, PRESET TUNING 7	
S215	EVQ21409K	SW, PRESET TUNING 8	
S216	EVQ21409K	SW, CD	
S217	EVQ21409K	SW, TAPE	
S218	EVQ21409K	SW, PRESET TUNING 1	
S219	EVQ21409K	SW, PRESET TUNING 2	
S220	EVQ21409K	SW, PRESET TUNING 3	

Ref. No.	Part No.	Part Name & Description	Remarks
S221	EVQ21409K	SW, PRESET TUNING 4	
S222	EVQ21409K	SW, PHONO	
S223	EVQ21409K	SW, TUNER	
S224	EVQ21409K	SW, POWER	
S225	EVQ21409K	SW, MEMORY	
S226	EVQ21409K	SW, MANUAL/FIXED	
S227	EVQ21409K	SW, 12.5KHZ DOWN	
S228	EVQ21409K	SW, 12.5KHZ UP	
S229	EVQ21409K	SW, EQ ON/FLAT	
S230	EVQ21409K	SW, PRESET MEMORY 1	
S231	EVQ21409K	SW, 6.3KHZ DOWN	
S232	EVQ21409K	SW, 6.3KHZ UP	
S233	EVQ21409K	SW, PRESET MEMORY 2	
S234	EVQ21409K	SW, 2.5KHZ DOWN	
S235	EVQ21409K	SW, 2.5KHZ UP	
S236	EVQ21409K	SW, PRESET MEMORY 3	
S237	EVQ21409K	SW, 1KHZ DOWN.	
S238	EVQ21409K	SW, 1KHZ UP	
S239	EVQ21409K	SW, DISPLAY MODE	
S240	EVQ21409K	SW, PRESET MEMORY 4	
S241	EVQ21409K	SW, 400HZ DOWN	
S242	EVQ21409K	SW, 400HZ UP	
S243	EVQ21409K	SW, PRESET MEMORY 5	
S244	EVQ21409K	SW, 160HZ DOWN	
S245	EVQ21409K	SW, 160HZ UP	
S246	EVQ21409K	SW, PRESET MEMORY 6	
S247	EVQ21409K	SW, 63HZ DOWN	
S248	EVQ21409K	SW, 63HZ UP	
S401	SSS153	SW, BEAT PROOF	
S481	EVQ21409K	SW, CUE/REV(DECK2)	
S482	EVQ21409K	SW, R. PLAY(DECK2)	
S483	EVQ21409K	SW, STOP(DECK2)	
S484	EVQ21409K	SW, F. PLAY(DECK2)	
S485	EVQ21409K	SW, CUE/REV(DECK2)	
S486	EVQ21409K	SW, REC PAUSE	
S487	EVQ21409K	SW, REC MUTE	
S488	EVQ21409K	SW, TAPE EDIT	
S489	EVQ21409K	SW, REW AUTO EDIT	
S490	EVQ21409K	SW, CUE/REV(DECK1)	
S491	EVQ21409K	SW, R. PLAY(DECK1)	
S492	EVQ21409K	SW, STOP(DECK1)	
S493	EVQ21409K	SW, F. PLAY(DECK1)	
S494	EVQ21409K	SW, CUE/REV(DECK1)	
S495	RSS3A18YA-H	SW, REVERSE MODE	
S496	RSS2A63ZA-H	SW, EDITING SPEED	
S497	RSS2A63ZA-H	SW, DOLBY NR	
S790	RSH1A005	SW, CLOSE DETECTOR	
S791	RSH1A005	SW, OPEN DETECTOR	
S951	RSH1A89ZB-U	SW, MODE(DECK1)	
S952	RSH1A90YB-U	SW, HALF(DECK1)	
S953	RSH1A90YB-U	SW, ATS(DECK1)	
S971	RSH1A89ZB-U	SW, MODE(DECK2)	

Ref. No.	Part No.	Part Name & Description	Remarks
S972	RSH1A90YB-U	SW, HALF(DECK2)	
S973	RSH1A90YB-U	SW, R. REC INH. (DECK2)	
S974	RSH1A90YB-U	SW, F. REC INH. (DECK2)	
S975	RSH1A90YB-U	SW, ATS(DECK2)	
S976	RSH1A90YB-U	SW, ATS(DECK2)	
		RELAY	
RLY801	RSY0005-1C	RELAY	
		CONNECTOR(S) & SOCKET(S)	
CN2	SJS50778JQ	SOCKET(7P)	
CN2A	SJT3711	CONNECTOR(7P)	
CN3	SJS50978JQ	SOCKET(9P)	
CN3A	SJT3909	CONNECTOR(9P)	
CN101, 102	RJU003K010M1	SOCKET(10P)	
CN131	SJT30543-V	CONNECTOR(5P)	
CN151	SJT31043-V	CONNECTOR(10P)	
CN201, 202	RJU003K006M1	SOCKET(6P)	
CN203	RJU003K010M1	SOCKET(10P)	
CN301	SJTD413	CONNECTOR(4P)	
CN302	RJP5G18ZA	CONNECTOR(5P)	
CN401	SJT30743-V	CONNECTOR(7P)	
CN402	SJT30843-V	CONNECTOR(8P)	
CN403	SJSD1005	CONNECTOR(10P)	
CN404	RJS1A6823	CONNECTOR(23P)	
CN404A	SJSD1105	CONNECTOR(11P)	
CN602	SJT30543-V	CONNECTOR(5P)	
CN651	RJU003K008M1	SOCKET(8P)	
CN790	REX0315	CONNECTOR ASS'Y(6P)	Ⓜ
CN801	SJT30843-V	CONNECTOR(8P)	
CN802	SJT30543-V	CONNECTOR(5P)	
CN803	SJS305-1	CONNECTOR(2P)	
CN805	SJT3101	CONNECTOR(1P)	
CN903	SJT30543-V	CONNECTOR(5P)	
CN905	SJT30543-V	CONNECTOR(5P)	
CN907	SJT30543-V	CONNECTOR(5P)	
CP101, 102	RJT003K010M1	CONNECTOR(10P)	
CP201, 202	RJT003K006M1	CONNECTOR(6P)	
CP203	RJT003K010M1	CONNECTOR(10P)	
CP651	RJT003K008M1	CONNECTOR(8P)	
CP790	RJP6G17ZA	PLUG(6P)	
		RELAY	
RLY801	RSY0005-1C	RELAY	⚠
		FM FRONT END PACK	
TN1	SNVFE337G01	FM FRONT END	

Ref. No.	Part No.	Part Name & Description	Remarks
		JACK(S)	
JK1	RJH4202	ANTENNA TERMINAL	
		FLAT CABLE(S)	
W131	RWJ1805200KQ	FLAT CABLE(5P)	M
W151	RWJ3810320KQ	FLAT CABLE(10P)	M
W401	RWJ3807270KQ	FLAT CABLE(7P)	M
W402	RWJ3808300KQ	FLAT CABLE(8P)	M
W403	RWJ4510170KQ	FLAT CABLE(10P)	M
W404	RWJ4511170KQ	FLAT CABLE(11P)	M
W451	RWJ3804270KD	FLAT CABLE(4P)	M
W452	RWJ3804110KD	FLAT CABLE(4P)	M
W453	RWJ0207160QQ	FLAT CABLE(7P)	M
W454	RWJ0210160QQ	FLAT CABLE(10P)	M
W601	RWJ3807150KK	FLAT CABLE(7P)	M
W602	RWJ1805160KQ	FLAT CABLE(5P)	M
W652	RWJ0102120KK	FLAT CABLE(2P)	M
W801	RWJ1808250KQ	FLAT CABLE(8P)	M
W802	RWJ1805320KQ	FLAT CABLE(5P)	M
W903	RWJ3805200KQ	FLAT CABLE(5P)	M
W905	RWJ3805250KQ	FLAT CABLE(5P)	M
W907	RWJ3805200KQ	FLAT CABLE(5P)	M
		<SERVO P. C. B.>	
		INTEGRATED CIRCUIT(S)	
IC701	AN8800SCE2	IC, SERVO AMP	
IC702	TCA0372DM2R	IC, SPINDLE MOTOR DRIVE	
IC703	AN8377N	IC, TRAVERSE MOTOR DRIVE	
IC704	MN6650	IC, DIGITAL SERVO PROCESSOR	
IC705	MN6477T2	IC, DIGITAL FILTER&D/A CONV.	
IC706	MN6626	IC, DIGITAL SIGNAL PROCESSOR	
		TRANSISTOR(S)	
Q701	2SB709S	TRANSISTOR	
		DIODE(S)	
D701	MA110TW	DIODE	
		VARIABLE RESISTOR(S)	
VR701	EVNDXAA00B14	V. R, BEST EYE ADJ.	
		COMPONENT COMBINATION	
Z701	RLB0003	COMBINATION PART	

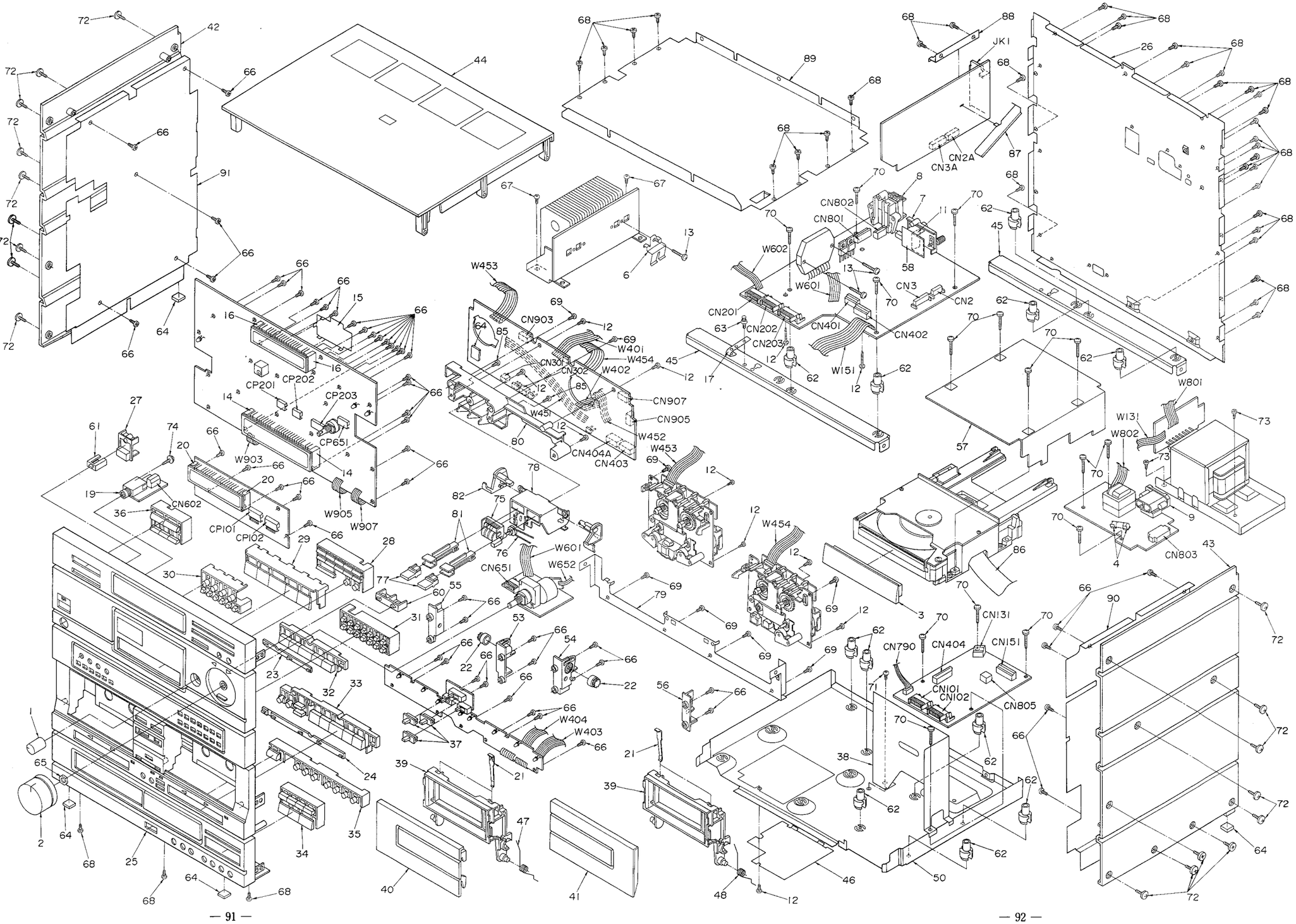
Ref. No.	Part No.	Part Name & Description	Remarks
		OSCILLATOR(S)	
X701	RSXZ33M8M01T	OSCILLATOR(33. 8688MHz)	
		SWITCH(ES)	
S701	SSHD5	SW, REST DETECTOR	
		PLUG(S) & SOCKET(S)	
CP701	RJP2G17ZA	PLUG(2P)	
CP702	RJP2G17ZA	PLUG(2P)	
CP703	RJP4G17ZA	PLUG(4P)	
CS701	RJU035T016-1	SOCKET(16P)	
CS702	RJS1A6723-1Q	SOCKET(23P)	

Ref. No.	Part No.	Part Name & Description	Remarks
		CABINET AND CHASSIS	
1	RGW0075	BALANCE KNOB	M
2	RGW0116-K	VOLUME KNOB	M
3	RKF0215-K	CD LID	M
4	RJF28ZA	FUSE HOLDER	
6	RMN0128	TR FIXTURE	M
7	SJF3067NJ	INPUT TERMINAL	
8	SJF5406	SPEAKER TERMINAL	
9	SJS9236	AC INLET	⚠
11	SMC6471S	PHONO SHIELD PLATE	M
12	XTB3+10J	SCREW	
13	XTB3+16J	SCREW	
14	RMA0457	GEQ FL HOLDER	M
15	RSC0233	MICON SHIELD PLATE	M
16	SMN2106	TUNER FL HOLDER	M
17	RME143ZA	CORD CLAMPER	
19	SJJ138	HEADPHONES JACK	
20	RMA0456	CD FL HOLDER	M
21	QBP2006A	HALF SUPPORT SPRING	
22	RDG0129	DAMPER GEAR	M
23	RGL0127-C	MECHA LED PANEL(A)	M
24	RGL0128-C	MECHA LED PANEL(B)	M
25	RFKGAHD52E-K	FRONT PANEL ASS'Y	M
26	RGR0121D-D	REAR BOARD	M
27	RGU0536-K	POWER BUTTON	M
28	RGU0577-K	TUNING BUTTON(B)	M
29	RGU0578-K	FUNCTION BUTTON	M
30	RGU0579-K	GEQ BUTTON(A)	M
31	RGU0580-K	GEQ BUTTON(B)	M
32	RGU0581-K	MECHA BUTTON(A)	M
33	RGU0582-K	MECHA BUTTON(B)	M
34	RGU0583-K	CD BUTTON(A)	M
35	RGU0584-K	CD BUTTON(B)	M
36	RGU0576-K	TUNING BUTTON(A)	M
37	RGV0049	SLIDE KNOB	M
39	RKF0135	CASSETTE HOLDER	M
40	RFKLAHD52EAK	CASSETTE LID ASS'Y(L)	M
41	RFKLAHD52EBK	CASSETTE LID ASS'Y(R)	M
42	RKM0165A-K	SIDE BOARD(L)	M
43	RKM0166A-K	SIDE BOARD(R)	M
44	RKM0167-K	UPPER BOARD	M
45	RMA0451	MAIN ANGLE(A)	M
46	RMAD465	BOTTOM COVER	M
47	RMB0146	OPEN SPRING(L)	M
48	RMB0147	OPEN SPRING(R)	M
50	RMK0126	BOTTOM BOARD	M
53	RMR0429	DAMPER ANGLE(L)	M
54	RMR0430	DAMPER ANGLE(R)	M
55	RMR0431	HOLDER SUPPORT(L)	M
56	RMR0432	HOLDER SUPPORT(R)	M

Ref. No.	Part No.	Part Name & Description	Remarks
57	RMV0029	CD DUST COVER	M
58	RMV0034	PVC SHEET	M
60	SGL270-1	VOL. LED WINDOW	M
61	SGL271-1	POWER LED WINDOW	M
62	SHE187-3	P.C.B. SUPPORT	
63	SHR9094	PLASTIC RIVET	
64	SHS3276	LEG CUSHION	M
65	XNS7FZ	NUT	
66	XTB26+10J	SCREW	
67	XTB3+10JFR	SCREW	
68	XTB3+10JFZ	SCREW	
69	XTB3+12JFR	SCREW	
70	XTB3+20J	SCREW	
72	XTB4+12JFZ	SCREW	
73	XTB4+8J	SCREW	M
74	XTWS3+10Q	SCREW	
75	RDC0005	COUNTER	M
76	RDV0020	COUNTER BELT	M
77	RGU0369	EJECT BUTTON	M
78	RMA0452	COUNTER ANGLE	M
79	RMA0453	CONNECT ANGLE	M
80	RMR0283	MECHANISM HOLDER	M
81	RMR0288-1	EJECT ROD	M
82	RMR0289	EJECT LEVER(L)	M
83	RMR0428	EJECT LEVER(R)	M
85	XTB26+6J	SCREW	
86	REE0275	CD FPC(23P)	M
87	RSC0247	TUNER SHIELD PLATE	M
88	RSC0249	TUNER SHIELD PLATE	M
89	RSC0222	UPPER SHIELD	M
90	RSC0223	SIDE SHIELD(R)	M
91	RSC0224	SIDE SHIELD(L)	M

■ EXPLODED VIEWS

• Cabinet and chassis parts

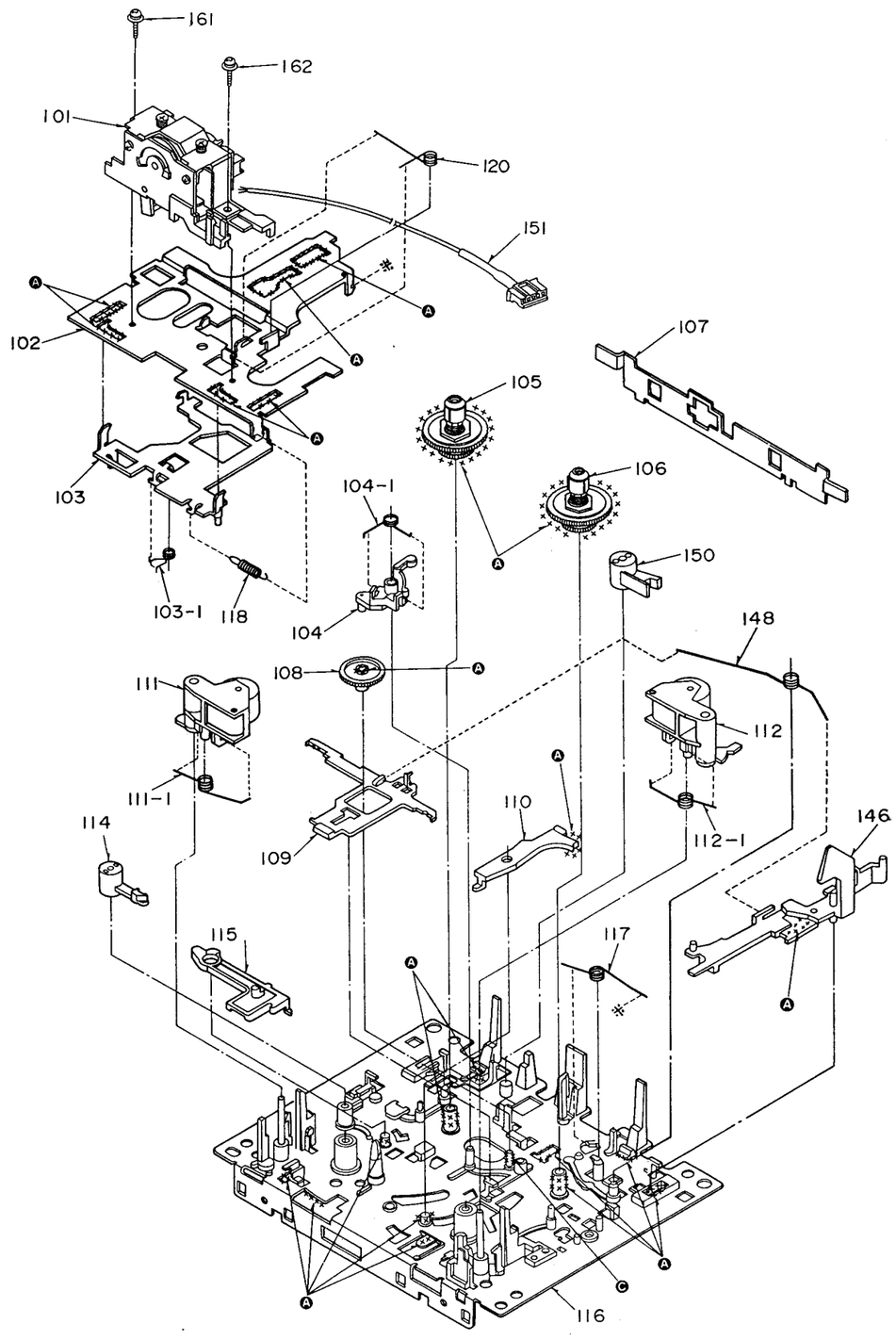


1 2 3 4 5 6 7 8 9

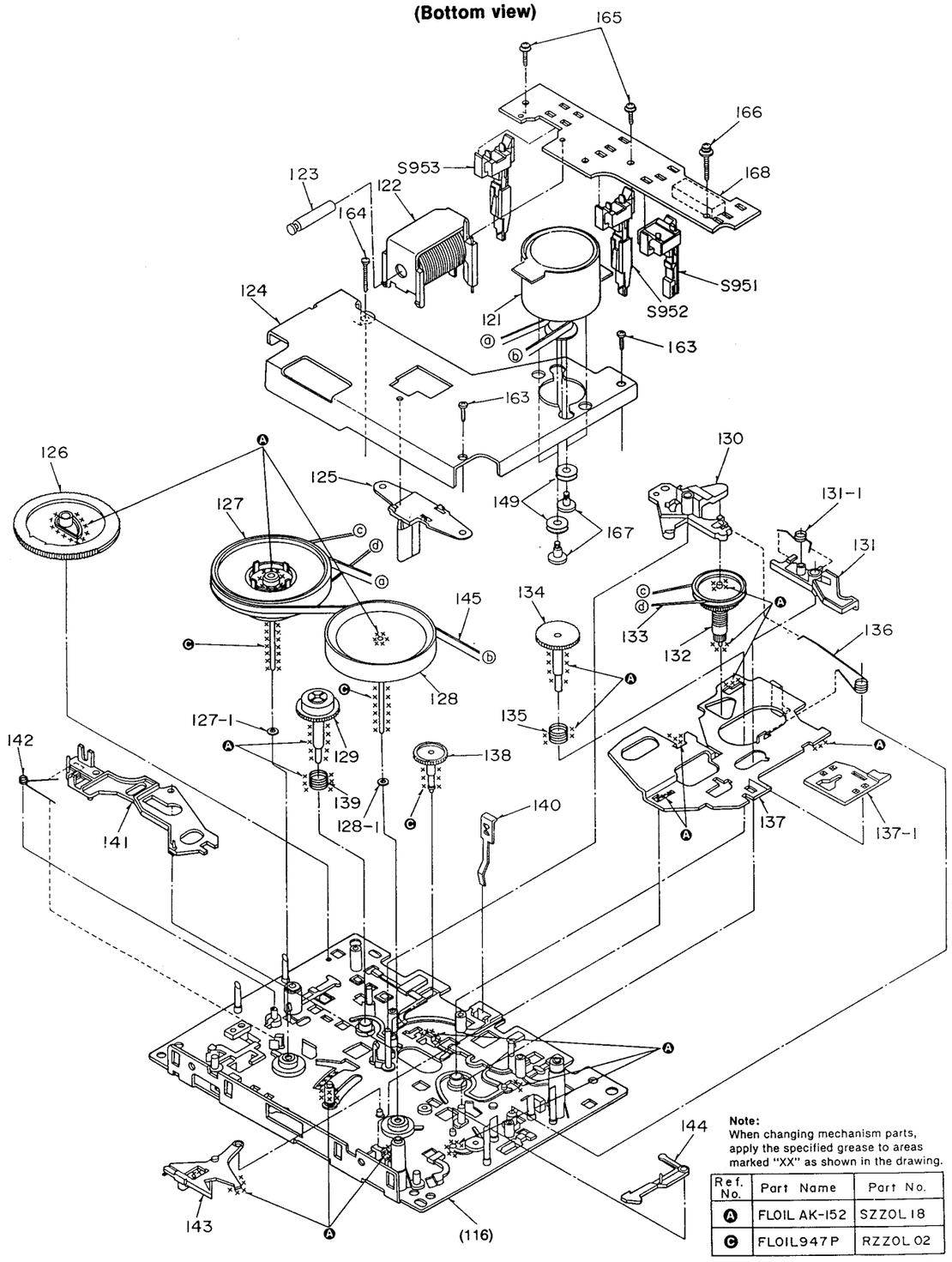
A B C D E F

- **Mechanical parts**
- **DECK 1**

(Top view)



(Bottom view)



Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
A	FL01L AK-152	SZZOL18
C	FL01L947P	RZZOL02

■ REPLACEMENT PARTS LIST

Notes : * Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
* Ⓜ Indicates in Remarks columns parts that are supplied by MESA.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

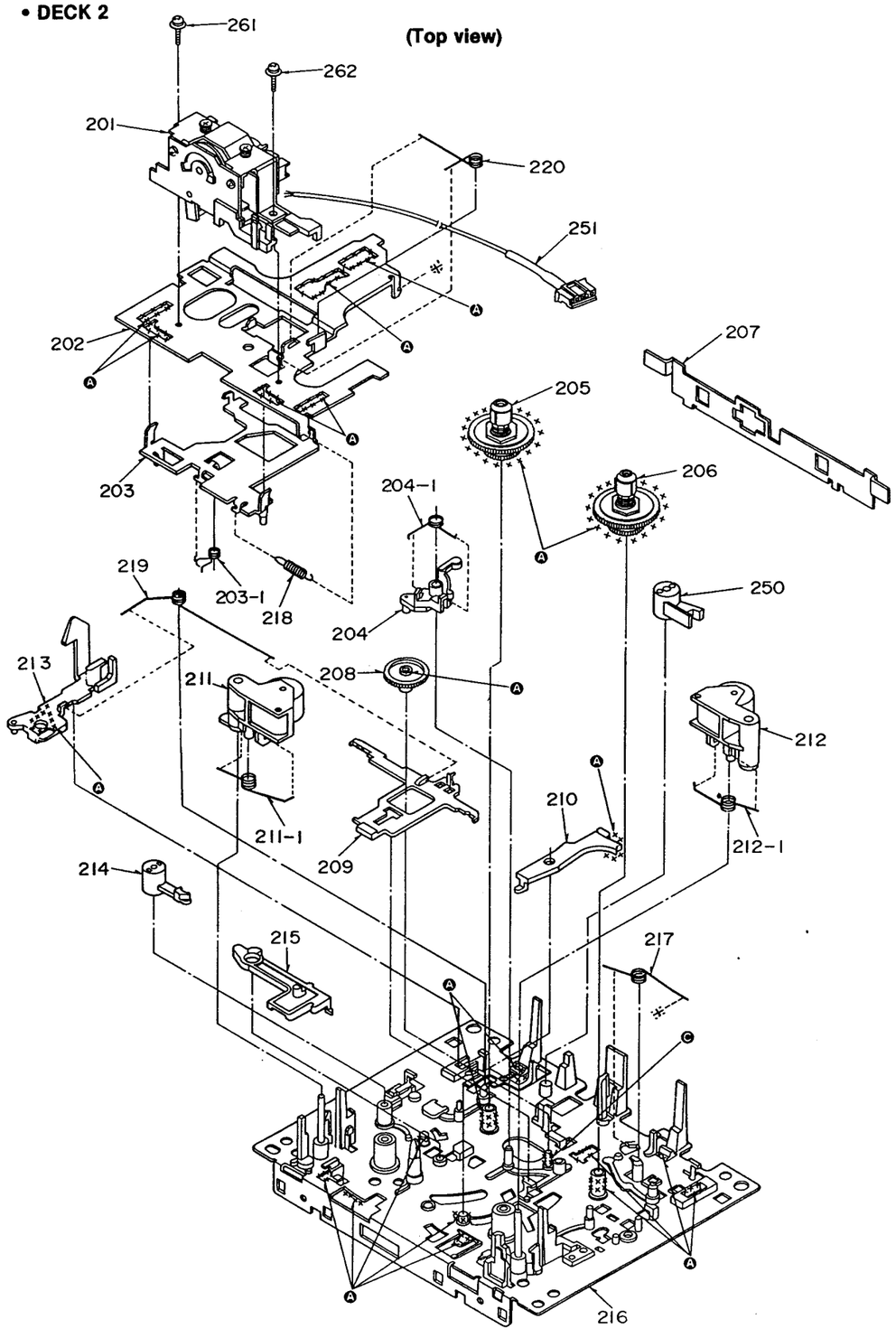
Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
DECK1			
101	RXQ0021	HEAD BLOCK(PLAYBACK)	
102	RUA793ZF	HEAD BASE	
103	RZLAR300	ROD	
103-1	RUW143ZA	SPRING	
104	1UB0089ZA	ARM	
104-1	RUW148ZA	SPRING	
105	1DM0018ZA	REEL TABLE(R)	
106	1DM0017ZA	REEL TABLE(F)	
107	RML0069-1	LEVER	
108	RDG5772ZC	GEAR	
109	RUB508ZB	BRAKE ROD	
110	RUB506ZB	LEVER	
111	1UB0088ZA	ARM(R)	
111-1	RUW141ZA	SPRING	
112	1UB0087ZA	ARM(F)	
112-1	RUW140ZC	SPRING	
114	RNL1ZD	DAMPER ARM	
115	RUB503ZD	MAIN LEVER	
116	RZUSX980	CHASSIS	
117	RUW142ZA	SPRING	
118	RUD105ZA	SPRING	
120	RUW139ZA	SPRING	
121	RFM133ZA	DC MOTOR	
122	1UE0015ZA	PLUNGER	
123	RUB428ZE	MOVING IRON CORE	
124	RUL1030YA	ANGLE	
125	RMD5014ZC	ANGLE	
126	RDG5927ZG	GEAR	
127	1DW0037ZA	FLYWHEEL(F)	
127-1	RNW139ZA	WASHER	
128	1DW0038ZA	FLYWHEEL(R)	
128-1	RNW138ZA	WASHER	
129	1DG0006ZA	REEL TABLE GEAR	
130	RUB513ZD	ARM	
131	1UB0091ZA	LEVER	
131-1	RUW146ZA	SPRING	
132	1DR0011ZA	MAIN PULLEY	
133	RDV90ZB	BELT	
134	RDG5769ZA	REEL TABLE GEAR	
135	RUQ111ZB	SPRING	
136	RUW145ZA	SPRING	
137	1UB0090ZA	ROD	
137-1	RUB512ZB	F.F.ROD	
138	RDG5773ZB	GEAR	
139	RUQ112ZA	SPRING	
140	RUS609ZC	TAPE PRESSURE SPRING	
141	RUB514ZC	LEVER	
142	RUW147ZA	SPRING	
143	RUB515ZA	LEVER	
144	RUB509ZA	LEVER	
145	RDV108ZA	CAPSTAN BELT	
146	RUB507ZD	EJECT ROD(R)	
148	RUW144ZA	SPRING	
149	RHG3032ZA	RUBBER CUSHION	
150	RNL180ZB	DAMPRE ARM	
151	REX0317	LEAD WIRE BLOCK(4P)	Ⓜ
161	XTW2+6L	SCREW	
162	XTW2+8L	SCREW	
163	XTN26+7J	SCREW	
164	RHE5203ZA	SCREW	
165	XTW2+8S	SCREW	
166	XYC2+JF16	SCREW	
167	RHD26002	SCREW	
168	RJS7T7ZA	CONNECTOR(7P), J951	

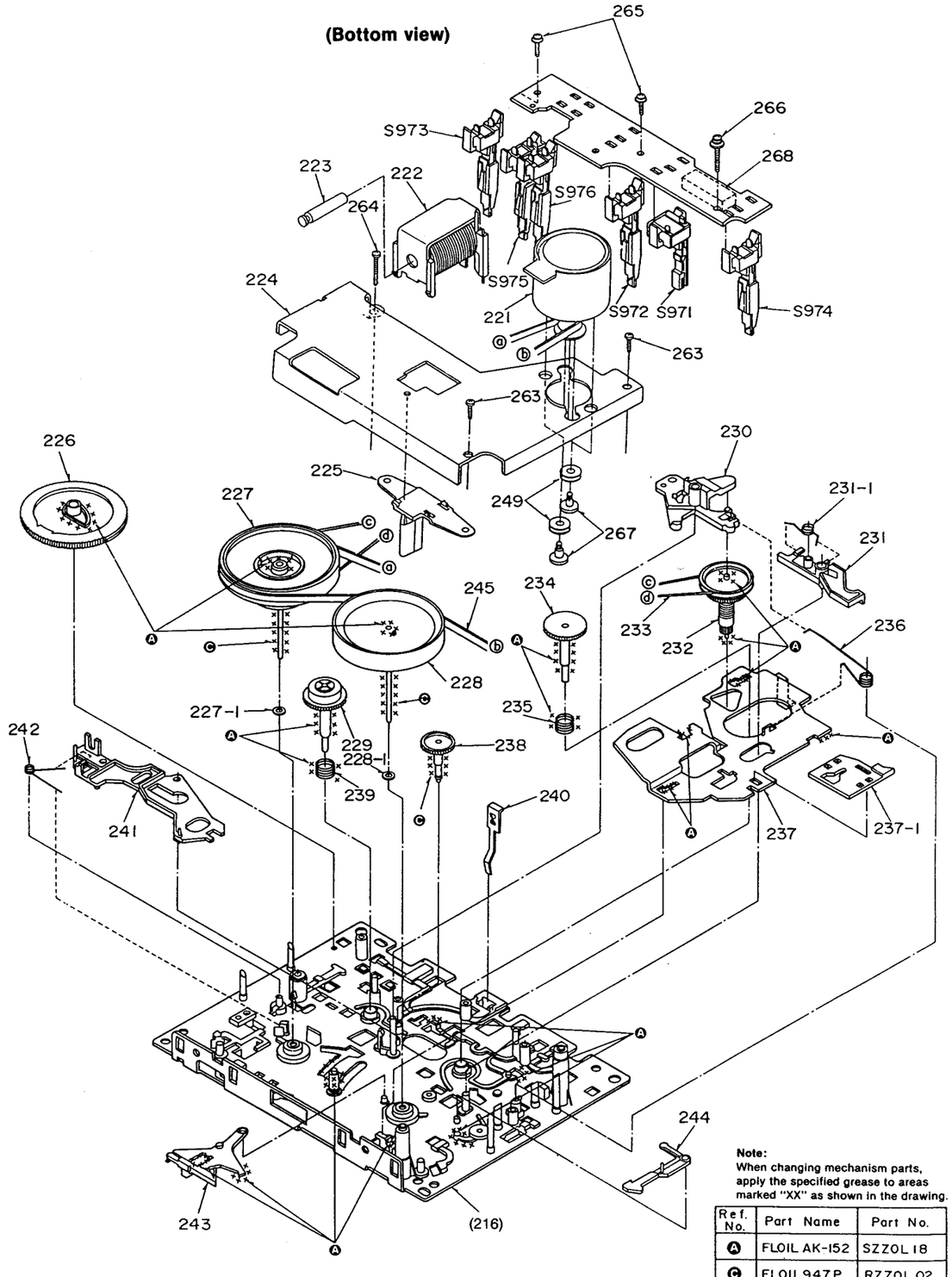
Ref. No.	Part No.	Part Name & Description	Remarks
		MECHANISM PARTS LIST	
DECK2			
201	RXQ0019	HEAD BLOCK(REC./PLAYBACK)	
202	RUA793ZF	HEAD BASE	
203	RZLAR300	ROD	
203-1	RUW143ZA	SPRING	
204	1UB0089ZA	ARM	
204-1	RUW148ZA	SPRING	
205	1DM0018ZA	REEL TABLE(R)	
206	1DM0017ZA	REEL TABLE(F)	
207	RML0069-1	LEVER	
208	RDG5772ZC	GEAR	
209	RUB508ZB	BRAKE ROD	
210	RUB506ZB	LEVER	
211	1UB0088ZA	ARM(R)	
211-1	RUW141ZA	SPRING	
212	1UB0087ZA	ARM(F)	
212-1	RUW140ZC	SPRING	
213	RUB541ZB	EJECT ROD(L)	
214	RNL1ZD	DAMPER ARM	
215	RUB503ZD	MAIN LEVER	
216	RZUSX980	CHASSIS	
217	RUW142ZA	SPRING	
218	RUD105ZA	SPRING	
219	RUW167ZA	SPRING	
220	RUW139ZA	SPRING	
221	RFM133ZA	DC MOTOR	
222	1UE0015ZA	PLUNGER	
223	RUB428ZE	MOVING IRON CORE	
224	RUL1030YA	ANGLE	
225	RMD5014ZC	ANGLE	
226	RDG5927ZG	GEAR	
227	1DW0037ZA	FLYWHEEL(F)	
227-1	RNW139ZA	WASHER	
228	1DW0038ZA	FLYWHEEL(R)	
228-1	RNW138ZA	WASHER	
229	1DG0006ZA	REEL TABLE GEAR	
230	RUB513ZD	ARM	
231	1UB0091ZA	LEVER	
231-1	RUW146ZA	SPRING	
232	1DR0011ZA	MAIN PULLEY	
233	RDV90ZB	BELT	
234	RDG5769ZA	REEL TABLE GEAR	
235	RUQ111ZB	SPRING	
236	RUW145ZA	SPRING	
237	1UB0090ZA	ROD	
237-1	RUB512ZB	F. F. ROD	
238	RDG5773ZB	GEAR	
239	RUQ112ZA	SPRING	
240	RUS609ZC	TAPE PRESSURE SPRING	

Ref. No.	Part No.	Part Name & Description	Remarks
241	RUB514ZC	LEVER	
242	RUW147ZA	SPRING	
243	RUB515ZA	LEVER	
244	RUB509ZA	LEVER	
245	RDV108ZA	CAPSTAN BELT	
249	RHG3032ZA	RUBBER CUSHION	
250	RNL180ZB	DAMPER ARM	
251	REX0355	LEAD WIRE BLOCK(5P)	Ⓜ
261	XTW2+6L	SCREW	
262	XTW2+8L	SCREW	
263	XTN26+7J	SCREW	
264	RHE5203ZA	SCREW	
265	XTW2+8S	SCREW	
266	XYC2+JF16	SCREW	
267	RHD26002	SCREW	
268	RJS10T7ZA	CONNECTOR(10P), J971	

■ EXPLODED VIEWS

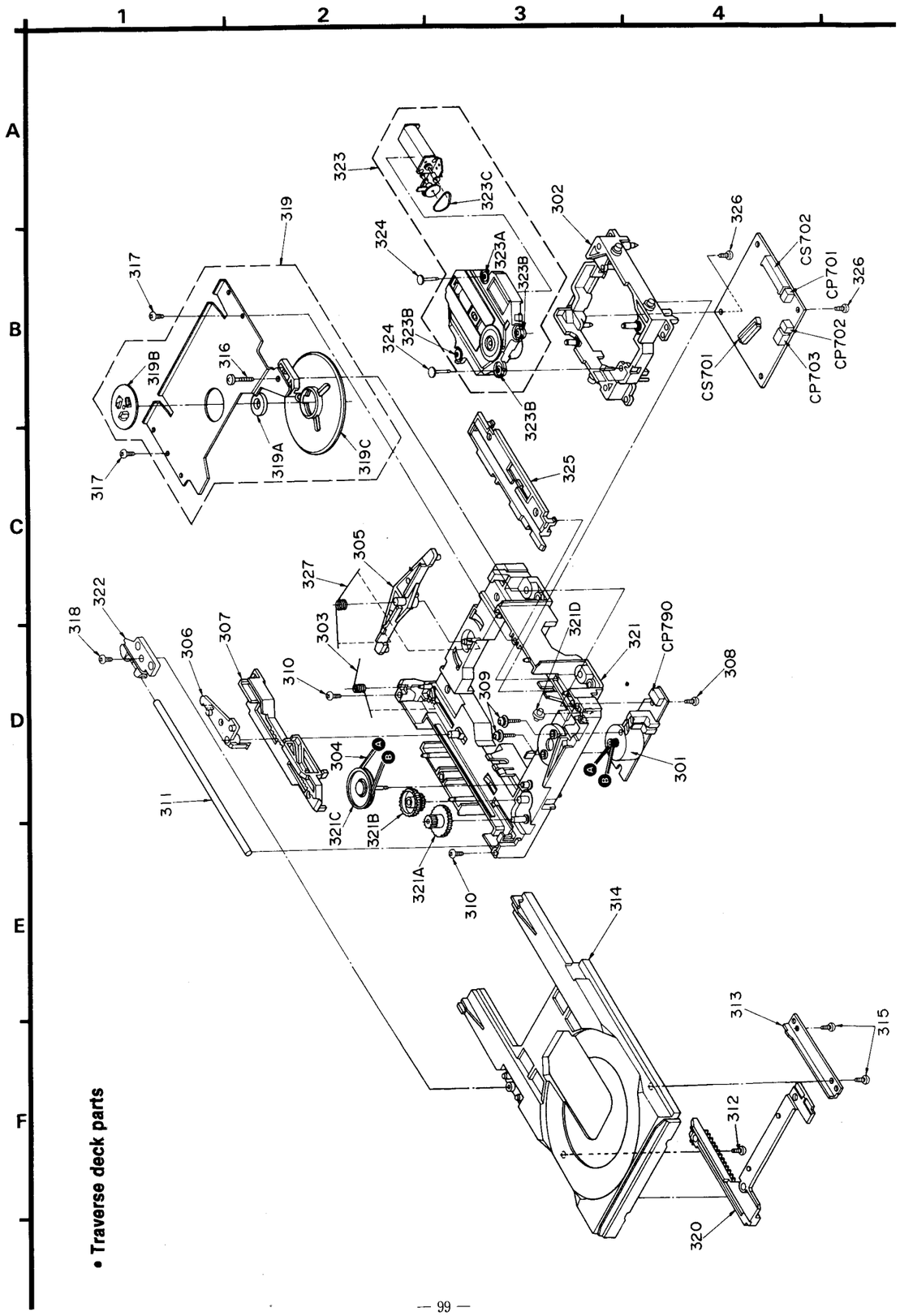
• DECK 2





Note:
When changing mechanism parts, apply the specified grease to areas marked "XX" as shown in the drawing.

Ref. No.	Part Name	Part No.
Ⓐ	FLOIL AK-152	SZZOL18
Ⓒ	FLOIL947P	RZZOL02



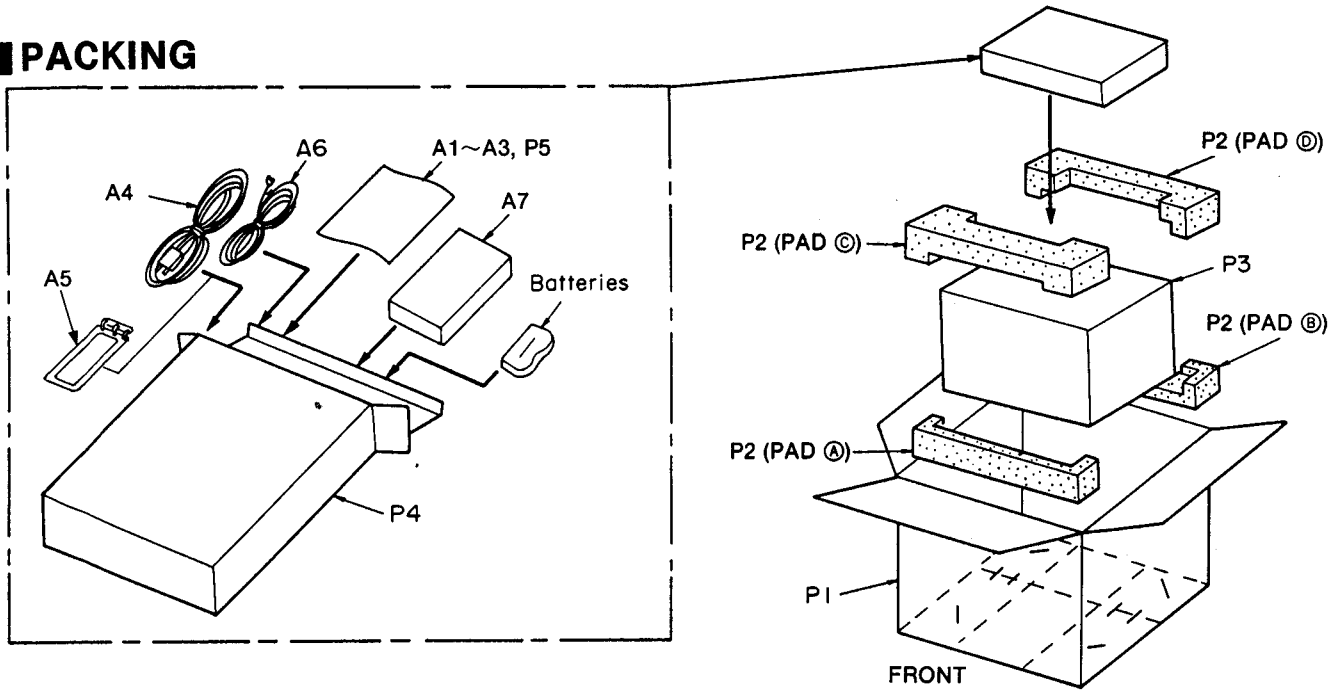
■ REPLACEMENT PARTS LIST

Notes : • Important safety notice:
Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
• Ⓜ Indicates in Remarks columns parts that are supplied by MESA.
* Warning: This product uses a laser diode. Refer to caution statements on page 3.
* ACHTUNG:
Die lasereinheit nicht zerlegen.
Die lasereinheit darf nur gegen eine vom hersteller spezifizierte einheit ausgetauscht werden.

Ref. No.	Part No.	Part Name & Description	Remarks
		TRAVERSE DECK	
301	REMD019	LOADING MOTOR ASS'Y	
302	RMKD105	CHASSIS	
303	RME0063	SPRING, LOCK LEVER	
304	RMG0158	BELT, RUBBER	
305	RML0177	LEVER, CONVERSION	
306	RML0178	LEVER, LOCK	
307	RMM0058	SLIDE PLATE (1)	
308	XTN26+6G	SCREW	
309	XYN2+F6FZ	SCREW	
310	RHD20010	SCREW	
311	RMU0046	TRAY GUIDE SHAFT	
312	RHD20009-1	SCREW	
313	RMA0328	SHUTTER HOLDER	
314	RGQ0066-K	TRAY (B)	
315	XTN2+8G	SCREW	
316	XTB3+25GFZ	SCREW	
317	XTN26+6G	SCREW	
318	XTN3+8JFZ	SCREW	
319	RXQ0122	CLAMPING PLATE ASS'Y	
319A	RHM245ZA	MAGNET	
319B	RMR0334	FIXED PLATE	
319C	RXQ0123	MAGNET HOLDER ASS'Y	
320	RFKNLDN7N-K	DRIVE GEAR(2) ASS'Y	
321	RFKJXDT77-H	MECHANICAL CHASSIS ASS'Y	
321A	RDG0142	RELAY GEAR	
321B	RDG0143	DRIVE GEAR(1)	
321C	RDP0041	RELAY PULLEY	
321D	SDRD14	ROLLER(B)	
322	RFKNXDT77C-H	GUIDE HOLDER ASS'Y	
323	SODD110Z	TRAVERSE DECK UNIT	
323A	SHGD112	FLOATING RUBBER(A)	
323B	SHGD113-1	FLOATING RUBBER(B)	
323C	RDV0014	BELT, RUBBER	
324	RMS0123-1	FIXED PIN	
325	RMM0059	SLIDE PLATE (2)	
326	XTV26+6G	SCREW	
327	RME0087	SPRING, ASSISTANCE	

Ref. No.	Part No.	Part Name & Description	Remarks
		PACKING MATERIAL	
P1	RPG0828	PACKING CASE	Ⓜ
P2	RPN0457	PAD	Ⓜ
P3	SPP748	PROTECTION BAG (UNIT)	
P4	SPSD155	ACCESSORIES BOX	
P5	SPB1061	PROTECTION BAG (F.B.)	
		ACCESSORIES	
A1	RQT1173-D	INSTRUCTION MANUAL	Ⓜ
A2	RQA0013	WARRANTY CARD	
A3	RQCB0169	SERVICENTER LIST	
A4	SFDAC05E03	AC POWER SUPPLY CORD	⚠
A5	SPB1163T	AM LOOP ANTENNA	
A5-1	SMA233-1M	AM ANTENNA HOLDER	
A5-2	XTN3+10AFZ	SCREW	
A6	SSA270M	FM INDOOR ANTENNA	
A7	RAK-SG302EM	REMOTE CONTROL TRANSMITTER	Ⓜ
A7-1	RKKD008-KE	BATTERY COVER	Ⓜ

■ PACKING



〈PAD Ⓐ Ⓑ Ⓒ Ⓓ Part No.: RPN0457〉

■ RESISTORS & CAPACITORS

Notes : • Capacity valuse are in microfarads (uF) unless specified otherwise, P=Pico-farads (pF) F=Farads (F)
• Resistance values are in ohms, unless specified otherwise, 1K=1,000 (OHM) , 1M=1,000k (OHM)
* Ⓜ Indicates in Values & Remarks columns parts that are supplied by MESA.

Ref. No.	Part No.	Values & Remarks
		RESISTORS
R1	ERDS2TJ562	1/4W 5.6K
R2	ERDS2TJ474	1/4W 470K
R3	ERDS2TJ122	1/4W 1.2K
R4	ERDS2TJ824	1/4W 820K
R5	ERDS2TJ391	1/4W 390
R6	ERDS2TJ561	1/4W 560
R7	ERDS2TJ822	1/4W 8.2K
R8	ERDS2TJ102	1/4W 1K
R9	ERDS2TJ471	1/4W 470
R10	ERDS2TJ332	1/4W 3.3K
R11	ERDS2TJ222	1/4W 2.2K
R12	ERDS2TJ153	1/4W 15K
R13	ERDS2TJ103	1/4W 10K
R20	ERDS2TJ103	1/4W 10K
R21	ERDS2TJ104	1/4W 100K
R22	ERDS2TJ473	1/4W 47K
R23	ERDS2TJ154	1/4W 150K
R24	ERDS2TJ223	1/4W 22K
R25	ERDS2TJ152	1/4W 1.5K
R28	ERDS2TJ123	1/4W 12K
R30	ERDS2TJ104	1/4W 100K
R31	ERDS2TJ102	1/4W 1K
R32	ERDS2TJ122	1/4W 1.2K
R33	ERDS2TJ684	1/4W 680K
R34	ERDS2TJ103	1/4W 10K
R35	ERDS2TJ183T	1/4W 18K
R39	ERDS2TJ103	1/4W 10K
R40	ERDS2TJ822	1/4W 8.2K
R41	ERDS2TJ182	1/4W 1.8K
R42	ERDS2TJ223	1/4W 22K
R43	ERDS2TJ102	1/4W 1K
R44	ERDS2TJ122	1/4W 1.2K
R45	ERDS2TJ223	1/4W 22K
R46	ERDS2TJ102	1/4W 1K
R47	ERDS2TJ332	1/4W 3.3K
R48	ERDS2TJ153	1/4W 15K
R49	ERDS2TJ102	1/4W 1K
R50	ERDS2TJ223	1/4W 22K
R51	ERDS2TJ333	1/4W 33K
R52	ERDS2TJ151	1/4W 150
R53, 54	ERDS2TJ223	1/4W 22K
R55, 56	ERDS2TJ272T	1/4W 2.7K
R57, 58	ERDS2TJ562	1/4W 5.6K
R59	ERDS2TJ224T	1/4W 220K
R61	ERDS2TJ102	1/4W 1K
R62	ERDS2TJ153	1/4W 15K
R63, 64	ERDS2TJ473	1/4W 47K
R65, 66	ERDS2TJ103	1/4W 10K
R67	ERDS2TJ473	1/4W 47K
R71, 72	ERDS2TJ102	1/4W 1K
R81, 82	ERDS2TJ103	1/4W 10K
R84	ERDS2TJ102	1/4W 1K
R85	ERDS2TJ561	1/4W 560
R86	ERDS2TJ562	1/4W 5.6K
R87	ERDS2TJ103	1/4W 10K
R88	ERDS2TJ151	1/4W 150
R106	ERDS2TJ471	1/4W 470
R107	ERDS2TJ222	1/4W 2.2K
R131, 132	ERDS1FVJ3R3T	1/2W 3.3 ⚠
R133, 134	ERDS2TJ101	1/4W 100
R135	ERDS1FVJ1R0T	1/2W 1.0 ⚠
R136	ERDS2TJ331	1/4W 330
R137	ERDS2TJ101	1/4W 100
R138	ERDS1FVJ1R0T	1/2W 1.0 ⚠
R151-166	ERDS2TJ221	1/4W 220
R167-169	ERDS2TJ472	1/4W 4.7K
R170	ERDS2TJ104	1/4W 100K
R171-175	ERDS2TJ472	1/4W 4.7K
R176	ERDS2TJ222	1/4W 2.2K
R177	ERDS2TJ472	1/4W 4.7K
R178	ERDS2TJ273	1/4W 27K
R179	ERDS2TJ103	1/4W 10K
R180	ERDS2TJ562	1/4W 5.6K
R181	ERDS2TJ272T	1/4W 2.7K
R182-184	ERDS2TJ102	1/4W 1K
R185, 186	ERDS2TJ472	1/4W 4.7K
R187	ERDS2TJ102	1/4W 1K
R188	ERDS2TJ472	1/4W 4.7K
R189, 190	ERDS2TJ471	1/4W 470
R191, 192	ERDS2TJ102	1/4W 1K
R193, 194	ERDS2TJ471	1/4W 470

Ref. No.	Part No.	Values & Remarks
R195	ERDS2TJ473	1/4W 47K
R196, 197	ERDS2TJ221	1/4W 220
R198, 199	ERDS2TJ103	1/4W 10K
R201-205	ERDS2TJ331	1/4W 330
R206-211	ERDS2TJ104	1/4W 100K
R212	ERDS2TJ103	1/4W 10K
R213	ERDS2TJ222	1/4W 2.2K
R214	ERDS2TJ103	1/4W 10K
R215	ERDS2TJ104	1/4W 100K
R216	ERDS2TJ474	1/4W 470K
R217	ERDS2TJ103	1/4W 10K
R218	ERDS2TJ123	1/4W 12K
R219	ERDS2TJ563	1/4W 56K
R220-222	ERDS2TJ103	1/4W 10K
R223	ERDS2TJ221	1/4W 220
R224, 225	ERDS2TJ104	1/4W 100K
R226, 227	ERDS2TJ103	1/4W 10K
R228	ERDS2TJ102	1/4W 1K
R229	ERDS2TJ122	1/4W 1.2K
R230	ERDS2TJ562	1/4W 5.6K
R231	ERDS2TJ331	1/4W 330
R232	ERDS2TJ223	1/4W 22K
R233	ERDS2TJ104	1/4W 100K
R234-237	ERDS2TJ102	1/4W 1K
R238	ERDS2TJ222	1/4W 2.2K
R239	ERDS2TJ681	1/4W 680
R240	ERDS2TJ105T	1/4W 1M
R241	ERDS2TJ102	1/4W 1K
R242-250	ERDS2TJ103	1/4W 10K
R251-255	ERDS2TJ102	1/4W 1K
R256, 257	ERDS2TJ101	1/4W 100
R258, 259	ERDS2TJ221	1/4W 220
R260-270	ERDS2TJ224T	1/4W 220K
R271, 272	ERDS2TJ102	1/4W 1K
R273	ERDS2TJ103	1/4W 10K
R274	ERDS2TJ104	1/4W 100K
R275	ERDS2TJ473	1/4W 47K
R276	ERDS2TJ103	1/4W 10K
R277	ERDS2TJ102	1/4W 1K
R278	ERDS2TJ222	1/4W 2.2K
R279	ERDS2TJ103	1/4W 10K
R280	ERDS2TJ105T	1/4W 1M
R281	ERDS2TJ102	1/4W 1K
R282-285	ERDS2TJ473	1/4W 47K
R286	ERDS2TJ333	1/4W 33K
R287	ERDS2TJ104	1/4W 100K
R288, 289	ERDS1FVJ3R3T	1/2W 3.3 ⚠
R301, 302	ERDS2TJ101	1/4W 100
R303, 304	ERDS2TJ104	1/4W 100K
R307, 308	ERDS2TJ330	1/4W 33
R309, 310	ERDS2TJ104	1/4W 100K
R311, 312	ERDS2TJ392T	1/4W 3.9K
R313, 314	ERDS2TJ332	1/4W 3.3K
R315, 316	ERDS2TJ472	1/4W 4.7K
R317, 318	ERDS2TJ224T	1/4W 220K
R319, 320	ERDS2TJ332	1/4W 3.3K
R321, 322	ERDS2TJ224T	1/4W 220K
R323, 324	ERDS2TJ472	1/4W 4.7K
R325, 326	ERDS2TJ330	1/4W 33
R329, 330	ERDS2TJ472	1/4W 4.7K
R333, 334	ERDS2TJ101	1/4W 100
R335, 336	ERDS2TJ225	1/4W 2.2M
R337, 338	ERDS2TJ224T	1/4W 220K
R339	ERDS2TJ223	1/4W 22K
R340	ERDS2TJ102	1/4W 1K
R341, 342	ERDS2TJ103	1/4W 10K
R343	ERDS2TJ221	1/4W 220
R344	ERDS2TJ472	1/4W 4.7K
R345	ERDS2TJ332	1/4W 3.3K
R346	ERDS2TJ223	1/4W 22K
R347	ERDS2TJ153	1/4W 15K
R348	ERDS2TJ103	1/4W 10K
R349	ERDS2TJ224T	1/4W 220K
R371, 372	ERDS2TJ103	1/4W 10K
R373, 374	ERDS2TJ155	1/4W 1.5M
R377, 378	ERDS2TJ123	1/4W 12K
R379, 380	ERDS2TJ223	1/4W 22K
R381, 382	ERDS2TJ682T	1/4W 6.8K
R383, 384	ERDS2TJ104	1/4W 100K
R385, 386	ERDS2TJ330	1/4W 33
R387, 388	ERDS2TJ821	1/4W 820
R389	ERDS2TJ472	1/4W 4.7K
R390	ERDS2TJ103	1/4W 10K
R391-394	ERDS2TJ472	1/4W 4.7K
R395, 396	ERDS2TJ391	1/4W 390
R397-400	ERDS2TJ222	1/4W 2.2K
R401, 402	ERDS2TJ4R7T	1/4W 4.7
R403, 404	ERDS2TJ333	1/4W 33K
R405	ERDS1FVJ680T	1/2W 68 ⚠
R406	ERDS2TJ561	1/4W 560
R407	ERDS2TJ681	1/4W 680
R408	ERDS2TJ222	1/4W 2.2K
R409	ERDS2TJ682T	1/4W 6.8K
R410	ERDS2TJ1R0	1/4W 1.0
R411, 412	ERDS2TJ224T	1/4W 220K
R413, 414	ERDS2TJ332	1/4W 3.3K
R415, 416	ERDS2TJ103	1/4W 10K
R417, 418	ERDS2TJ473	1/4W 47K
R419, 420	ERDS2TJ272T	1/4W 2.7K
R421, 422	ERDS2TJ682T	1/4W 6.8K
R423, 424	ERDS2TJ222	1/4W 2.2K
R425	ERDS2TJ433	1/4W 43K
R427	ERDS2TJ221	1/4W 220
R429	ERDS2TJ472	1/4W 4.7K
R430	ERDS2TJ103	1/4W 10K
R431, 432	ERDS2TJ822	1/4W 8.2K
R433-436	ERDS2TJ472	1/4W 4.7K
R437	ERDS2TJ223	1/4W 22K
R438, 439	ERDS2TJ103	1/4W 10K
R440	ERDS2TJ102	1/4W 1K
R441, 442	ERDS2TJ122	1/4W 1.2K
R443, 444	ERDS2TJ682T	1/4W 6.8K
R445	ERDS2TJ222	1/4W 2.2K
R446	ERDS2TJ103	1/4W 10K
R447	ERDS2TJ102	1/4W 1K
R449	ERDS2TJ222	1/4W 2.2K
R450	ERDS2TJ102	1/4W 1K
R451	ERDS2TJ153	1/4W 15K
R452	ERDS2TJ123	1/4W 12K
R453	ERDS2TJ103	1/4W 10K
R454	ERDS2TJ184T	1/4W 180K
R455	ERDS2TJ102	1/4W 1K
R456	ERDS2TJ153	1/4W 15K
R457	ERDS2TJ822	1/4W 8.2K
R458	ERDS2TJ103	1/4W 10K
R459	ERDS2TJ184T	1/4W 180K
R460	ERDS2TJ102	1/4W 1K
R461	ERDS2TJ103	1/4W 10K
R467, 468	ERDS2TJ103	1/4W 10K
R469	ERDS2TJ102	1/4W 1K
R470, 471	ERDS2TJ184T	1/4W 180K
R472	ERDS2TJ102	1/4W 1K
R474, 475	ERDS2TJ103	1/4W 10K
R476	ERDS2TJ102	1/4W 1K
R477	ERDS2TJ273	1/4W 27K
R478	ERDS2TJ472	1/4W 4.7K
R481	ERDS2TJ102	1/4W 1K
R482, 483	ERDS2TJ222	1/4W 2.2K
R484	ERDS2TJ102	1/4W 1K
R485, 486	ERDS2TJ103	1/4W 10K
R487	ERDS2TJ332	1/4W 3.3K
R488	ERDS2EJ121	1/4W 120
R489, 490	ERDS2TJ151	1/4W 150
R491, 492	ERDS2TJ221	1/4W 220
R493-495	ERDS2EJ121	1/4W 120
R496	ERDS2TJ103	1/4W 10K
R497, 498	ERDS2TJ223	1/4W 22K
R499	ERDS2TJ122	1/4W 1.2K
R501, 502	ERDS2TJ391	1/4W 390
R503, 504	ERDS2TJ224T	1/4W 220K
R505, 506	ERDS2TJ391	1/4W 390
R507, 508	ERDS2TJ333	1/4W 33K
R509, 510	ERDS2TJ681	1/4W 680
R511, 512	ERDS2TJ680T	1/4W 68
R513, 514	ERDS2TJ184T	1/4W 180K
R515, 516	ERDS2TJ123	1/4W 12K

Ref. No.	Part No.	Values & Remarks
R517, 518	ERDS2TJ102	1/4W 1K
R519, 520	ERDS2TJ563	1/4W 56K
R522, 523	ERDS2TJ153	1/4W 15K
R524, 525	ERDS2TJ183T	1/4W 18K
R526, 527	ERDS2TJ153	1/4W 15K
R528, 529	ERDS2TJ123	1/4W 12K
R532, 533	ERDS2TJ151	1/4W 150
R534-536	ERDS2TJ103	1/4W 10K
R537, 538	ERDS2TJ563	1/4W 56K
R539, 540	ERDS2TJ222	1/4W 2.2K
R543, 544	ERDS2TJ563	1/4W 56K
R545, 546	ERDS2TJ122	1/4W 1.2K
R548, 549	ERDS2TJ104	1/4W 100K
R551, 552	ERDS2TJ822	1/4W 8.2K
R553, 554	ERDS2TJ223	1/4W 22K
R555-570	ERDS2TJ224T	1/4W 220K
R571, 572	ERDS2TJ123	1/4W 12K
R573, 574	ERDS2TJ822	1/4W 8.2K
R575, 576	ERDS2TJ222	1/4W 2.2K
R577, 578	ERDS2TJ683	1/4W 68K
R601, 602	ERDS2TJ102	1/4W 1K
R603, 604	ERDS2TJ224T	1/4W 220K
R605, 606	ERDS2TJ102	1/4W 1K
R607, 608	ERDS2TJ393	1/4W 39K
R609, 610	ERDS1FVJ100T	1/2W 10 ⚠
R611	ERDS2TJ684	1/4W 680K
R612	ERD25FJ331	1/4W 330 ⚠
R613	ERDS2TJ103	1/4W 10K
R614	ERDS2TJ154	1/4W 150K
R615	ERDS2TJ103	1/4W 10K
R616	ERDS2TJ472	1/4W 4.7K
R617	ERDS2TJ104	1/4W 100K
R618, 619	ERDS2TJ393	1/4W 39K
R620, 621	ERDS2TJ222	1/4W 2.2K
R623, 624	ERDS2TJ470	1/4W 47
R631-638	ERDS2EJ820	1/4W 82
R651, 652	ERDS2TJ102	1/4W 1K
R653, 654	ERDS2TJ224T	1/4W 220K
R655, 656	ERDS2TJ222	1/4W 2.2K
R657, 658	ERDS2TJ152	1/4W 1.5K
R659, 660	ERDS2TJ104	1/4W 100K
R661	ERDS1FVJ3R3T	1/2W 3.3 ⚠
R662, 663	ERDS2TJ103	1/4W 10K
R670	ERDS2TJ103	1/4W 10K
R671	ERDS2TJ102	1/4W 1K
R672	ERDS2TJ824	1/4W 820K
R673	ERDS2TJ822	1/4W 8.2K
R674	ERDS2TJ331	1/4W 330
R675, 676	ERDS2TJ104	1/4W 100K
R801	ERDS2TJ122	1/4W 1.2K
R802	ERDS2TJ221	1/4W 220
R803	ERDS1FVJ1R0T	1/2W 1.0 ⚠

Ref. No.	Part No.	Values & Remarks
R804	ERDS2TJ2R2T	1/4W 2.2
R807	ERDS2TJ122	1/4W 1.2K
R808	ERDS2TJ221	1/4W 220
R810	ERDS2TJ153	1/4W 15K
R811	ERDS2TJ182	1/4W 1.8K
R812	ERDS2TJ562	1/4W 5.6K
R813	ERDS1FVJ390T	1/2W 39 ⚠
R814	ERDS2TJ153	1/4W 15K
R815	ERDS2TJ332	1/4W 3.3K
R816	ERDS2TJ102	1/4W 1K
R817	ERDS2TJ221	1/4W 220
R819	ERDS1FVJ331T	1/2W 330 ⚠
R820	ERDS2TJ222	1/4W 2.2K
R821	ERDS2TJ332	1/4W 3.3K
R826	ERDS2TJ2R2T	1/4W 2.2
R829	ERDS1FVJ1R0T	1/2W 1.0 ⚠
R830	ERDS1FVJ331T	1/2W 330 ⚠
R831	ERX12ANJR22P	1/2W 0.22 ⚠
R832-836	ERDS1FVJ390T	1/2W 39 ⚠
R901, 902	ERDS2TJ331	1/4W 330
R903	ERDS2TJ183T	1/4W 18K
R904	ERDS2TJ104	1/4W 100K
R905	ERDS2TJ334	1/4W 330K
R906	ERDS2TJ822	1/4W 8.2K
R907	ERDS2TJ184T	1/4W 180K
R908, 909	ERDS2TJ104	1/4W 100K
R910	ERDS2TJ822	1/4W 8.2K
R911, 912	ERDS2TJ154	1/4W 150K
R913	ERDS2TJ682T	1/4W 6.8K
R914	ERDS2TJ104	1/4W 100K
R915	ERDS2TJ562	1/4W 5.6K
R916	ERDS2TJ561	1/4W 560
R917	ERDS2TJ271	1/4W 270
R918	ERDS2TJ682T	1/4W 6.8K
R919	ERDS2TJ104	1/4W 100K
R920	ERDS2TJ154	1/4W 150K
R921-923	ERDS2TJ103	1/4W 10K
R924	ERDS2TJ104	1/4W 100K
R925	ERDS2TJ822	1/4W 8.2K
R926	ERDS2TJ154	1/4W 150K
R927	ERDS2TJ682T	1/4W 6.8K
R928	ERDS2TJ154	1/4W 150K
R929	ERDS2TJ104	1/4W 100K
		CAPACITORS
C1	ECKR1H103ZF5	50V 0.01U
C2	ECKR1H103ZF5	50V 0.01U
C3	ECBT1H470J5	50V 47P
C4	ECEA1CU100	16V 10U
C5	ECKT1H223ZF	50V 0.022U
C6	ECBT1H150JC5	50V 15P

Ref. No.	Part No.	Values & Remarks
C7	ECBT1C103MS5	16V 0.01U
C8	ECEA0JU101B	6.3V 100U
C9	ECEA1CU100	16V 10U
C10-12	ECKT1H223ZF	50V 0.022U
C13	ECBT1H101KB5	50V 100P
C14	ECEA1CU100	16V 10U
C15	ECKR1H103ZF5	50V 0.01U
C16	ECEA1CU100	16V 10U
C17	ECEA1HU2R2	50V 2.2U
C19	ECBT1H471KB5	50V 470P
C20	ECEA1CU100	16V 10U
C21	ECFR1C183KR	16V 0.018U
C22	ECQB1H473KF3	50V 0.047U
C25	ECBT1H180JC5	50V 18P
C26	ECKT1H223ZF	50V 0.022U
C27	ECBT1H330J5	50V 33P
C28	ECBT1H100JC5	50V 10P
C29	ECKR1H103ZF5	50V 0.01U
C41	ECKT1H223ZF	50V 0.022U
C42	ECEA1HU010	50V 1U
C43	ECKT1H223ZF	50V 0.022U
C51	ECEA1CU101	16V 100U
C52	ECEA1HUR47B	50V 0.47U
C53	ECEA1HU010	50V 1U
C54-56	ECEA1HU3R3	50V 3.3U
C57, 58	ECKD1H682KB	50V 6800P
C59	ECKT1H223ZF	50V 0.022U
C60	ECFR1C473KR	16V 0.047U
C61	ECQP1H471JZ	50V 470P
C62	ECEA1VU4R7	35V 4.7U
C63, 64	ECBT1H102KB5	50V 1000P
C65, 66	ECFR1C392JR	16V 3900P
C67-72	ECKR1H103ZF5	50V 0.01U
C73	ECBT1H471KB5	50V 470P
C74	ECBT1H220J5	50V 22P
C75	ECKR1H103ZF5	50V 0.01U
C76	ECBT1H102KB5	50V 1000P
C81, 82	ECBT1H150JC5	50V 15P
C83	ECBT1H102KB5	50V 1000P
C84	ECBT1H181KB5	50V 180P
C85	ECEA0JU221	6.3V 220U
C86	ECEA25M4R7R	25V 4.7U
C87	ECKT1H223ZF	50V 0.022U
C88	ECKR1H103ZF5	50V 0.01U
C89	ECEA1CU330	16V 33U
C90-92	ECBT1H102KB5	50V 1000P
C102	ECBT1C103NS5	16V 0.01U
C103	ECEA1CK100B	16V 10U
C106-110	ECBT1H101KB5	50V 100P
C111-113	ECBT1C103NS5	16V 0.01U
C135	ECEA1EU102E	25V 1000U
C136	ECEA1EU100B	25V 10U

Ref. No.	Part No.	Values & Remarks
C137	ECEA1CU470	16V 47U
C138	ECKR1H103ZF5	50V 0.01U
C139	ECEA1CU100	16V 10U
C140	ECEA0JU470B	6.3V 47U
C141-144	ECKR1H103ZF5	50V 0.01U
C151	ECBT1C103NS5	16V 0.01U
C152	ECEA0JU470B	6.3V 47U
C153	ECFR1E104MR	25V 0.1U
C154	ECEA1HU0R1	50V 0.1U
C155-157	ECBT1C103NS5	16V 0.01U
C159-162	ECBT1H102KB5	50V 1000P
C163	ECEA1HU3R3	50V 3.3U
C164	ECBT1H102KB5	50V 1000P
C165, 166	ECFR1E104MR	25V 0.1U
C167	ECBT1H102KB5	50V 1000P
C170	ECBT1C103NS5	16V 0.01U
C171, 172	ECBT1H101KB5	50V 100P
C201-203	ECBT1H101KB5	50V 100P
C205-208	ECBT1H101KB5	50V 100P
C209	ECBT1H331KB5	50V 330P
C210	ECBT1C103NS5	16V 0.01U
C211	ECEA0JU221	6.3V 220U
C212	ECEA1HK010B	50V 1U
C213	ECBT1C103NS5	16V 0.01U
C215, 216	ECBT1H101KB5	50V 100P
C217-222	ECBT1H330J5	50V 33P
C223-225	ECEA0JU102	6.3V 1000U
C226	ECBT1H330J5	50V 33P
C227	ECBT1C103NS5	16V 0.01U
C228	ECQV1H105JZ	50V 1U
C229	ECEA0JK101	6.3V 100U
C230	ECBT1C103NS5	16V 0.01U
C231	ECBT1H101KB5	50V 100P
C232	ECEA1VK100B	35V 10U
C233	ECEA1HK3R3	50V 3.3U
C234	ECKR1H103ZF5	50V 0.01U
C235	ECEA1HKR33	50V 0.33U
C236	ECBT1C103NS5	16V 0.01U
C237	ECEA1HKR33	50V 0.33U
C238	ECBT1C103NS5	16V 0.01U
C239, 240	ECBT1H101KB5	50V 100P
C242	ECBT1C103NS5	16V 0.01U
C244	ECEA0JK101	6.3V 100U
C245	ECEA0JU102	6.3V 1000U
C246	ECQV1H105JZ	50V 1U
C247	ECBT0J223NS5	6.3V 0.022U
C248	ECEA1HK010B	50V 1U
C249	ECBT1H102KB5	50V 1000P
C250, 251	ECEA1EK4R7	25V 4.7U
C252	ECKR1H103ZF5	50V 0.01U
C253	ECBT1H101KB5	50V 100P
C254	ECQV1H105JZ	50V 1U

Ref. No.	Part No.	Values & Remarks
C255, 256	ECBA1H101KB5	50V 100P
C257	ECQV1H105JZ	50V 1U
C301, 302	ECBA1H681KB5	50V 680P
C305, 306	ECEA0JU101B	6.3V 100U
C307, 308	ECFR1C333KR	16V 0.033U
C309, 310	ECEA1EU4R7	25V 4.7U
C311	ECEA1CU221	16V 220U
C312	ECEA1CU470	16V 47U
C313	ECEA1CU100	16V 10U
C315, 316	ECFR1C153KR	16V 0.015U
C317, 318	ECFR1C123JR	16V 0.012U
C319, 320	ECBT1H561KB5	50V 560P
C321	ECBT1C103NS5	16V 0.01U
C323, 324	ECBT1H102KB5	50V 1000P
C325, 326	ECBT1C103NS5	16V 0.01U
C341, 342	ECBT1H181KB5	50V 180P
C343, 344	ECBT1H121KB5	50V 120P
C345, 346	ECBT1H102KB5	50V 1000P
C347, 348	ECEA1HU010	50V 1U
C349, 350	ECFR1C392JR	16V 3900P
C351, 352	ECEA1HUR33	50V 0.33U
C353-356	ECFR1C153KR	16V 0.015U
C357, 358	ECFR1C103KR	16V 0.01U
C359, 360	ECBT1C103NS5	16V 0.01U
C361	ECEA1EU4R7	25V 4.7U
C367, 368	ECBT1H121KB5	50V 120P
C369, 370	ECBT1H471KB5	50V 470P
C401	ECFR1C153KR	16V 0.015U
C402	ECQP1H123JZ3	50V 0.012U M
C403, 404	ECFR1C332KR	16V 3300P M
C405	ECFR1C682KR	16V 6800P
C406	ECEA1CU470	16V 47U
C407	ECKW1H222KB5	50V 2200P
C408	ECKT1H122KB	50V 1200P
C409, 410	ECFR1C104MR	16V 0.1U
C415, 416	ECFR1C472JR	16V 4700P
C417-420	ECEA1HU010	50V 1U
C421	ECEA1AU471	10V 470U
C422	ECEA1CU471B	16V 470U
C424	ECEA1CU470	16V 47U
C425, 426	ECEA1CU100	16V 10U
C427, 428	ECEA1HKR68	50V 0.68U
C429, 430	ECEA1CU100	16V 10U
C432	ECEA1CU100	16V 10U
C451-454	ECFR1C104MR	16V 0.1U
C455	ECEA0JU470	6.3V 47U
C456	ECQP1H822JZ3	50V 8200P M
C457	ECFR1C104MR	16V 0.1U
C500	ECEA1HKR33	50V 0.33U
C501	ECBT1H180J5	50V 18P
C501A	ECEA1HKR33	50V 0.33U
C502	ECBT1H180J5	50V 18P

Ref. No.	Part No.	Values & Remarks
C503, 504	ECBT1H221KB5	50V 220P
C505, 506	ECEA1HU010	50V 1U
C507-510	ECBT1H102KB5	50V 1000P
C511, 512	ECEA0JU330	6.3V 33U
C513, 514	ECFR1C223KR	16V 0.022U
C515, 516	ECFR1C682KR	16V 6800P
C517, 518	ECEA1HU010	50V 1U
C519	ECKR1H473ZF5	50V 0.047U
C520	ECKR1H103ZF5	50V 0.01U
C521	ECKF1H103ZF	50V 0.01U
C522	ECBT1H221KB5	50V 220P
C523, 524	ECFR1E104KR	25V 0.1U
C525, 526	ECFR1E104MR	25V 0.1U
C527-529	ECBT1H470J5	50V 47P
C530-532	ECEA1HU010	50V 1U
C533, 534	ECBA1H681KB5	50V 680P
C535, 536	ECEA0JU330	6.3V 33U
C537, 538	ECKR1H103ZF5	50V 0.01U
C539-541	ECEA1HU010	50V 1U
C542, 543	ECBT1H470J5	50V 47P
C551	ECEA1HUR22	50V 0.22U
C552	ECEA1HKR22B	50V 0.22U
C553	ECEA1HU010	50V 1U
C554	ECEA1HK010B	50V 1U
C555	ECEA1HU0R1	50V 0.1U
C556	ECEA1HK0R1	50V 0.1U
C557	ECEA1HKR33	50V 0.33U
C558	ECEA1HUR33	50V 0.33U
C559, 560	ECFR1C333KR	16V 0.033U
C561, 562	ECEA1HKR15	50V 0.15U
C563, 564	ECFR1C153KR	16V 0.015U
C565, 566	ECFR1C683KR	16V 0.068U
C567, 568	ECFR1C562JR	16V 5600P
C569, 570	ECFR1C273KR	16V 0.027U
C571, 572	ECFR1C222KR	16V 2200P
C573, 574	ECFR1C103KR	16V 0.01U
C575, 576	ECFR1C122KR	16V 1200P M
C577, 578	ECFR1C472JR	16V 4700P
C579, 580	ECBT1H121KB5	50V 120P
C581	ECEA1EK4R7	25V 4.7U
C582	ECEA1EU4R7	25V 4.7U
C583	ECEA1EK4R7	25V 4.7U
C584	ECEA1EU4R7	25V 4.7U
C591, 592	ECEA1CU100	16V 10U
C593	ECKR1H103ZF5	50V 0.01U
C594	ECEA1CU220	16V 22U
C595	ECBT1C103NS5	16V 0.01U
C596	ECEA1CK100B	16V 10U
C597	ECEA1HU010	50V 1U
C598	ECKR1H103ZF5	50V 0.01U
C601, 602	ECEA1HU010	50V 1U
C603, 604	ECBT1H821KB5	50V 820P

Ref. No.	Part No.	Values & Remarks
C605, 606	ECBT1H102KB5	50V 1000P
C607, 608	ECEA1CU100	16V 10U
C609, 610	ECBT1H120J5	50V 12P
C611, 612	ECKR1H473ZF5	50V 0.047U
C613	ECEA1HU330	50V 33U
C614	ECEA2AU100	100V 10U
C615	ECKT1H102KB	50V 1000P
C616	ECEA1EU4R7	25V 4.7U
C617, 618	ECKR1H103ZF5	50V 0.01U
C630, 631	ECBT1H331KB5	50V 330P
C651, 652	ECEA1HU010	50V 1U
C653, 654	ECBA1H681KB5	50V 680P
C655, 656	ECEA1CU100	16V 10U
C657, 658	ECKR1H103ZF5	50V 0.01U
C665	ECEA0JU101B	6.3V 100U
C667	ECEA1CU100	16V 10U
C668, 669	ECEA1HUR33	50V 0.33U
C790	ECA1AKF820E	10V 82U
C800	ECKWKC103PF2	400V 0.01U ⚠
C801, 802	ECEA1HU332UE	50V 3300U
C803-806	ECKR2H103ZU	500V 0.01U
C807	ECEA1VU102	35V 1000U
C808-811	ECKR1H103ZF5	50V 0.01U
C813	ECKD1H682KB	50V 6800P
C816	ECEA1EU102E	25V 1000U
C817-820	ECKR1H103ZF5	50V 0.01U
C821	ECKD1H682KB	50V 6800P
C822	ECEA1CU101	16V 100U
C823	ECEA1CU221	16V 220U
C824	ECKD1H682KB	50V 6800P
C825	ECEA1CU470	16V 47U
C826, 827	ECEA1CU101	16V 100U
C828	ECEA1AU101	10V 100U
C831	ECKD1H682KB	50V 6800P
C832	ECEA1CU101	16V 100U
C833	ECEA1VU470	35V 47U
C834	ECEA1CU100	16V 10U
C835	ECKD1H682KB	50V 6800P
C836	ECEA1AU101	10V 100U
C837	ECEA1CU330	16V 33U
C901	ECEA1EU4R7	25V 4.7U
C902, 903	ECFR1C393KR	16V 0.039U
C904, 905	ECFR1C333KR	16V 0.033U
C906, 907	ECEA1EU4R7	25V 4.7U
C908, 909	ECFR1C472JR	16V 4700P
C910, 911	ECBT1H821KB5	50V 820P
C912	ECEA1EK4R7	25V 4.7U
C913	ECEA1EU4R7	25V 4.7U
C914, 915	ECFR1C123JR	16V 0.012U
C916	ECEA1EK4R7	25V 4.7U
C917, 918	ECFR1C222KR	16V 2200P
C919, 920	ECBT1H561KB5	50V 560P

Ref. No.	Part No.	Values & Remarks
C921	ECEA1EK4R7	25V 4.7U
		<SERVO P.C.B.>
		RESISTOR(S)
R701	ERJ6GEYJ100	1/10W 10
R702	ERJ6GEYJ471V	1/10W 470
R703	ERJ6GEYJ102V	1/10W 1K
R704	ERJ6GEYJ103V	1/10W 10K
R706	ERJ6GEYJ473V	1/10W 47K
R707	ERJ6GEYJ222V	1/10W 2.2K
R708	ERJ6GEYJ683V	1/10W 68K
R709	ERJ6GEYJ122V	1/10W 1.2K
R710	ERJ6GEYJ182V	1/10W 1.8K
R711	ERJ6GEYJ473V	1/10W 47K
R712	ERJ6GEYJ471V	1/10W 470
R714	ERJ6GEYJ473V	1/10W 47K
R715	ERJ6GEYJ223V	1/10W 22K
R716	ERJ6GEYJ104V	1/10W 100K
R717	ERJ6GEYJ682V	1/10W 6.8K
R718	ERJ6GEYJ223V	1/10W 22K
R719	ERJ6GEYJ123V	1/10W 12K
R720	ERJ6GEYJ273V	1/10W 27K
R721	ERJ6GEYJ823	1/10W 82K
R722	ERJ6GEYJ561V	1/10W 560
R723	ERJ6GEYJ104V	1/10W 100K
R724	ERJ6GEYJ104V	1/10W 100K
R725	ERJ6GEYJ471V	1/10W 470
R726	ERJ6GEYJ102V	1/10W 1K
R729	ERJ6GEYJ102V	1/10W 1K
R730	ERJ6GEYJ102V	1/10W 1K
R731	ERJ8GEYJ470V	1/8W 47
R732	ERJ6GEYJ562V	1/10W 5.6K
R733	ERJ6GEYJ332V	1/10W 3.3K
R734	ERJ6GEYJ562V	1/10W 5.6K
R735	ERJ6GEYJ222V	1/10W 2.2K
R736	ERJ6GEYJ682V	1/10W 6.8K
R737	ERJ6GEYJ562V	1/10W 5.6K
R738	ERJ6GEYJ562V	1/10W 5.6K
R739	ERJ6GEYJ562V	1/10W 5.6K
R741	ERJ6GEYJ102V	1/10W 1K
R742	ERJ6GEYJ102V	1/10W 1K
R743	ERJ6GEYJ102V	1/10W 1K
R744	ERJ6GEYJ393V	1/10W 39K
R745	ERJ6GEYJ102V	1/10W 1K
R746	ERJ6GEYJ102V	1/10W 1K
R747	ERJ6GEYJ473V	1/10W 47K
		JUMPER(S)
RJ701	ERJ6GEY0R00V	CHIP JUMPER

Ref. No.	Part No.	Values & Remarks
RJ703	ERJ6GEY0R00V	CHIP JUMPER
RJ704	ERJ6GEY0R00V	CHIP JUMPER
RJ705	ERJ6GEY0R00V	CHIP JUMPER
RJ706	ERJ6GEY0R00V	CHIP JUMPER
RJ707	ERJ6GEY0R00V	CHIP JUMPER
RJ708	ERJ6GEY0R00V	CHIP JUMPER
RJ709	ERJ6GEY0R00V	CHIP JUMPER
RJ710	ERJ6GEY0R00V	CHIP JUMPER
RJ711	ERJ6GEY0R00V	CHIP JUMPER
		CAPACITOR(S)
C701	ECEA0JKA220	6.3V 22U
C702	ECEA0JKS470	6.3V 47U
C703	ECEA0JKS101I	6.3V 100U
C709	ECUV1C224KBM	16V 0.22U
C710	ECUV1C104MBM	16V 0.1U
C711	ECUV1E103MBN	25V 0.01U
C713	ECEA1CSN4R7I	16V 4.7U
C714	ECEA1HKS010	50V 1U
C715	ECUV1H472KBN	50V 4700P
C716	ECUV1C473KBN	16V 0.047U
C717	ECUV1H681KBN	50V 680P
C718	ECEA1AKS101I	10V 100U
C719	ECUV1E103MBN	25V 0.01U
C720	ECUV1E153MBN	25V 0.015U
C721	ECUV1E103MBN	25V 0.01U
C722	ECEA0JKS470	6.3V 47U
C723	ECUV1C104MBM	16V 0.1U
C724	ECUV1E333MBN	25V 0.033U
C725	ECUV1E103MBN	25V 0.01U
C726	ECUV1H471KBN	50V 470P
C727	ECEA0JKS470	6.3V 47U
C728	ECUV1C104MBM	16V 0.1U
C729	ECUV1C104MBM	16V 0.1U
C730	ECUV1C224KBM	16V 0.22U
C731	ECEA0JKS331I	6.3V 330U
C732	ECUV1H102MBN	50V 1000P
C733	ECEA0JKS101I	6.3V 100U
C734	ECUV1E223MBN	25V 0.022U
C735	ECUV1C224KBM	16V 0.22U
C737	ECUV1C224KBM	16V 0.22U
C738	ECEA0JKS101I	6.3V 100U
C739	ECUV1E103MBN	25V 0.01U
C740	ECUV1H472MBN	50V 4700P
C741	ECUV1C224KBM	16V 0.22U
C742	ECUV1H392KBN	50V 3900P
C743	ECEA0JKS101I	6.3V 100U
C744	ECUV1H102KBN	50V 1000P
C745	ECUV1H102KBN	50V 1000P
C746	ECEA0JKS101I	6.3V 100P
C747	ECUV1C104MBM	16V 0.1U

Ref. No.	Part No.	Values & Remarks
C748	ECEA1HKS010	50V 1U
C749	ECUV1E103MBN	25V 0.01U
C750	ECUV1H050DCN	50V 5P
C751	ECUV1C224KBM	16V 0.22U
C752	ECUV1C104MBM	16V 0.1U
C753	ECEA0JKA220	6.3V 22U
C754	ECEA0JKA220	6.3V 22U
C755	ECUV1C104MBM	16V 0.1U
C756	ECUV1H050DCN	50V 5P
C757	ECUV1H050DCN	50V 5P
C758	ECUV1C224KBM	16V 0.22U
C763	ECUV1E103MBN	25V 0.01U

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